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Article

Imagining Possible Futures: A Comparative Analysis

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Abstract

This article presents a comparative study exploring how diverse mindscapes influence futures thinking, informing futures studies curricula and educator roles. Workshops in three locations involving two participant groups were analysed. Data collection involved a mixed method approach, including a Likert scale questionnaire and reflection essays. The study reveals diverse cultural worldviews and societal contexts in Taiwan, Mexico, and Guatemala, with cultural factors significantly shaping participants' perceptions of the future. Recognising these influences enables a nuanced understanding and informs curricula design and scaffolded learning to support the development of futures literacy.

Keywords

Comparative Analysis, Cultural Diversity, Feminising Futures, Learning Environment, Futures Studies, Causal Layered Analysis

Introduction

The lack of systematic comparison limits our understanding of learning futures studies and acquiring futures literacy. This study addresses this gap with a comparative study to better understand the impact of cultures and traditions have on futures thinking and future consciousness among teachers and students in Taipei, Mexico City, and Guatemala through workshops as learning environments with a view to foster more inclusive and accessible futures literacy, transcending boundaries and transforming teaching practices

The paper begins with a brief discussion on the significance and advantages of a cross-border study. The methodology section outlines the study design, evaluation process, and data analysis. Comparative analysis results are then presented, reporting findings for the participant groups from Taiwan and Latin America. The paper concludes with a causal layered analysis for a deeper comprehension of the challenges facing teaching the future, explore the systemic causes, worldviews and metaphors that perpetuate these issues, and offer some transformative solutions and ideas.

Crossing Boundaries in Learning Futures Studies: Why Compare?

Amid the global surge in futures studies activities and advocacy, a critical gap exists - a lack of systematic comparison of outcomes. This absence hinders the transfer and conversion of advantages between cultures, limiting our ability to comprehensively explain learning futures studies and acquiring futures literacy.

In Dator's (2003) critical assessment of the field of Futures, he draws attention to its prevailing Western and male-centric perspectives, a concern echoed by numerous authors such as Milojevic (1999, 2000, 2005) who champions feminising futures studies and the ‘women’s ways of knowing’; Degand (2022) delves into the necessity of envisioning unimagined solutions while contemplating future possibilities in Black education and the integration

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of Black comics in classrooms — as part of a special edition dedicated to Black education and Afrofutures (Winn, 2022). These are just some examples highlighting the pressing need for a more inclusive gender, cultural and epistemological mix. This study aims to contribute to this movement in promoting a better understanding of teaching the future and foster a broader range of perspectives and voices within the discipline.

Comparative Studies of Educational Futures

This study was conceptualised on the premise in which crosses national boundaries offers much promise for generating new insights for at least two reasons. First, there usually is a greater variation in variables of interest (e.g. teaching methods, student attitudes) in a sample drawn from multiple countries than from a one-country sample. Second, the taken-for-granted familiar educational practices, beliefs and attitudes in one country and culture can be exposed, made 'strange' and questioned by others. Such research not only contributes to the field of futures studies with an understanding of learning in other cultures, but also sharpens insights in their own culture, as Fraser (1996) advocates, and Aldridge & Fraser (2000) confirm that with the findings from a cross-cultural study on classroom learning environments for science education in Australia and Taiwan.

Some recent single-site comparative studies from the literature are summarised here. Hoffman (2019) examined the preferred futures among a cohort of culturally diverse undergraduate students at a Taiwanese university. The study focused on the differences in responses from students of different nationalities. In another study conducted in Taiwan, Abdullah (2023) identifies divergent levels of engagement and participation between Taiwanese and international students for collaborative learning in classroom settings and from the findings, five emerging key themes informed an instructional outcomes framework; namely peer interactions, peer relationships and team spirit, learner independence, and that such learning environment promotes positive interdependence which facilitates the development of an ability to understand and application of theories and concepts learned in class.

In a two-sites, cross-national study, funded by the Prince Mohammed Bin Fahd Center for Futuristic Studies (PMFCFS) and the World Futures Studies Federation (WFSF), the 2nd research grant 2021/2022, Beara and Dubovicki (2023) examine and compare the perceptions of futures of education among two groups: one group of university students of education (future school teachers) in Croatia and another, students of psychology (future school psychologists) from Serbia, using data collected a series of five workshops conducted in the two locations. The study demonstrates the use of the Polak Game in facilitating the thinking about the future for the two culturally-different groups of participants, in which the space encouraged an exploration of personal assumptions: optimism-pessimism about the future at a broader level, and more specifically, in this case, the Polak Game, an observable framework, found to be useful as a research method in examining the views of culturally-different participants about a socio phenomenon such as the future of education.

Cross-border studies provide insights into variations and commonalities across settings, aiding a comprehensive understanding of effective learning environments for futures studies. This analysis informs policymakers, educators, and individuals fostering a more inclusive and adaptable approach to teaching the future.

Methodology

Learning Environment: Workshop Design

The workshop designs are epistemologically rooted in the theory of Anticipatory Action Learning (Inayatullah, 2006), designed with the intention to create an awareness, understanding and appreciation for the key drivers and trends of environmental change; and the barriers that weigh us down and stop us from moving forward; and to create a space for the conscious re-orientation of learning by questioning and challenging dominant assumptions using the concept of images of preferred future based on the Futures Triangle (Inayatullah, 2008).

The workshops were designed as a space for collaborative learning encouraging active participation in thinking about the future. Abdullah (2023) asserts the importance of collaborative learning for futures studies and documents four primary instructional outcomes fostering positive interdependence, namely team spirit, learning independence, peer relationships and interactions.

> Collaborative learning strategies work well for futures studies as the subject is highly conceptual, perceptual, and foggy, more descriptive than prescriptive, and premised on students having some level of critical thinking for the analysis and application of concepts (Van Boxtel et al., 2000; Linton et al., 2014). Such learning can be arduous for students who are used to being asked to find an exact answer to the question, 'what is' rather than to explore and learn about the questions, 'what's there' and 'what if'. So, the strategy of getting students working in smaller groups where they can research, analyse, explore and discuss issues together makes learning futures studies something more do-able and possibly, fun (Abdullah, 2023, p3).

Workshop Structure

The guiding principles for workshop design include: the Futures Triangle as the core framework for teaching the future; small groups discussions— Zoom breakout rooms for sessions conducted virtually; incorporating playful gaming elements with attractive, colourful visual designs, both, on online platform, Miro and worksheets for face-to-face sessions. Each workshops were structured for a duration of 120 or180 minutes depended on accessibility at different schools and universities.

Data Collection Tool Design

A post-workshop survey (in two languages - English and Spanish) was designed to capture participants' learning outcomes and reflections in three sections: (i) Image of the Future, (ii) Navigating the Future, and (iii) Collaborative learning. The survey comprises 12 questions of 4-point Likert scale, 1 being strongly disagree and 4 being strongly agree; except for question 8, where teachers were asked how they felt about collaborative learning environment for students, where the 4-point Likert scale, 1 being very comfortable and 4 being highly uncomfortable. A set of semi-structured questions to guide participants in providing further details corresponding their Likert scale responses. The reliability of the 12 items was tested by using Cronbach's alpha, which showed a satisfactory level of internal consistency (Latin America: alpha=0.8764 and Taiwan, alpha=0.7132); a reliability coefficient of 0.70 or above is usually considered acceptable (Taber, 2018).

The design of the survey questions was informed by two studies: Ahvenharju, Minkkkinen & Lalot (2018) conceptualise futures consciousness to be explained by five dimensions: (1) Time perspective, (2) Agency belief, (3) Openness to alternatives, (4) System perception and (5) Concern for Others; and Chen & Hsu's (2020) five constructs of futures thinking, namely, Factor 1: Change Agent, Factor 2: Transdisciplinary system, Factor 3: Long-term thinking, Factor 4: Concern for others and Factor 5: Openness to alternatives. Table 1 presents the mapping of the post-workshop survey questions onto Factor 1: "Change Agent indicates that the students take complex positions on issues, and attempt to use the future to change the present problems; …that agency is possible; that the future is optimistic, that is, good futures can be created" (p:107) and Factor 3: "Longer-term or forward thinking means moving from the day-to-day operational considerations of management to the longer-term transformative dimensions of leadership; .. how far an individual plans their future or how far their images of the future reach (Beal, 2011)" (p:108).

Table 1: Design of Post-Workshop Survey Questions Sections (i) & (ii)

Mapping the post-workshop survey questions onto Ahvenharju, Minkkkinen & Lalot (2018) dimensions of Futures Consciousness; and Chen & Hsu (2020:107) constructs of futures thinking: Factor 1 and Factor 3

Factor 1	Post-workshop survey questions
Agency belief	Question 1: I feel … about the future
	Question 2: The future is surprising
	Question 7: I gladly take initiatives to adapt and change
System perception	Question 3: The future is a continuation of trends
	Question 4: The future is not knowable; we can't study the future
Factor 3	
Time Perspective	Question 5: The future comes so fast, I feel helpless
	Section (i): Our Image of the Future
Openness to alternatives	Question 6: There are many possibilities for my future in the next 10 years

The questions in Section (iii) on Collaborative Learning were purposefully selected and adapted from Abdullah's (2023) study where it was demonstrated that collaborative learning environments promote peer interdependence and interactions, resulting in enhanced learning outcomes.

Considering the limited time available for participants to work together (typically a 2 or 3-hour workshop), the research team opted to include only these select questions in the post-workshop survey. The questions include: for the Student Groups — Working collaboratively with other people helps me learn better; Working collaboratively with other people helps me see things from a different perspective; and Working collaboratively with other people can help us better understand others; and for the Teacher Groups —How do you feel about collaborative learning environment for students; Working collaboratively with others helps students learn better; Working collaboratively with others helps students see things from a different perspective; Working collaboratively with others helps student better understand others; and Working collaboratively with others helps cultivate pluralism among students rather than having a singular view of the world. Table 2 presents the set of questions for collaborative learning environment.

Table 2: Design of Post-Workshop Survey Questions: Section (iii)

Section (iii)	**Collaborative Learning Environment**
Question 8 (teacher only)	How do you feel about collaborative learning environment for students?
Question 9	Working collaboratively with others helps me learn better.
Question 10	Working collaboratively with others helps me see things from a different perspective.
Question 11	Working collaboratively with others helps me better understand others.
Question 12 (teacher only)	Working collaboratively with others helps cultivate pluralism among students rather than having a singular view of the world

Participants

The project aims to introduce futures literacy to a distinct set of participants, including teachers and students. Access to conduct workshops at schools or university was highly depended on relationships and networks, and this is true for both Taiwan and Latin America. For the teacher workshop in Taiwan, the school director set up the workshop as part of the teachers capacity development session, hence we had two groups of teachers to attend the 3-hour workshop. Two Latin American schools declined to participate, believing that the project would not benefit their students, while teachers offered their teaching spaces, seeing the project as an opportunity to promote critical thinking and formation in their groups. One school agreed to give access to their teachers and students as the head of school was familiar with Futures Studies.

The series of 16 workshops were conducted at three different locations, namely New Taipei City, Mexico City and Guatemala between September 2021 and December 2022. A total of 218 participants responded to the post-workshop survey, 53% were from Taiwan, and 47% Latin America combined: 25% Mexico City and 22% Guatemala. Teachers and educators contributed to 18.3% (40 of 218), university students, 50% (109 of 218), and high school students, 31.7% (69 of 218). The detailed demography of participants for each category and location is presented in Table 3.

Table 3: Number of participant based on location and category

Category/Number of Participants	Taiwan		Latin America				
	New Taipei City	%	Mexico City	%	Guatemala	%	Numbers (%)
Teachers and educators	18	8	17	31	5	11	40 (18.3%)
University students	51	61	16	29	42	89	109 (50%)
High School Students	47	31	22	40	0	0	69 (31.7%)
Total number of participants	116	100	55	100	47	100	218 (100%)
Percentage	53%		25%		22%		100%

Data Analysis

For the purpose of a comparative analysis, the data from Mexico City and Guatemala were combined, labeled as Latin America; and the high school and university student groups were merged as one group — student.

For the comparative analysis between the two sets of data (Taiwan and Latin America) the statistical procedure of comparing mean-scores and p-values (t-test) was applied. The qualitative data collected from reflection-type semi-structured questions provide deeper and richer insights on learning experience and outcomes. These information were coded, clustered and thematically analysed. Refer to (Abdullah, 2023:8-9) for a detailed description on the stages and process of analysing qualitative data.

Results: A Comparative Analysis

The results are presented in three sections, comprising of Student and Teacher Groups.

Section (i) Images of the Future

One of the main objectives of the series of workshops was to make thinking about the future more accessible with the help of some conceptual tools. The classic four metaphors of the future (Kauffman, 1976) were introduced as visuals guiding participants to describe their feelings about the future and how we make sense of and interact in the world as Lakoff & Johnson (2003, 1999) propose. Metaphors enable an increasing degree of self-reflexivity (Judge, 2016). The first was the rollercoaster in a moonless night representing a lack of control due to conditioning and circumstances; the second, the mighty river representing change is difficult; the third, the great ocean representing expansive choice, unbounded opportunities and the last was the rolling dice reminds us that there is a strong elements of chance in everything that happens. Wildman & Inayatullah (1996:727) critique that the classical model was 'severely limited and culturally biased' when their workshop participants remarked that none of the metaphors were relevant or valid, just as cautioned by Kauffman (1976:65) "Try to keep the discussion from degenerating into an argument over the validity" of the views. Despite the limitations, the four metaphors were a good introduction to a set of language we can use to describe our feelings about the future. How would we think

and talk about the future otherwise?
Figure 1 presents two charts showing the distribution of choices of metaphors by students from Latin America and Taiwan, while Figure 2 focuses on choices of metaphors by teachers from the two countries.

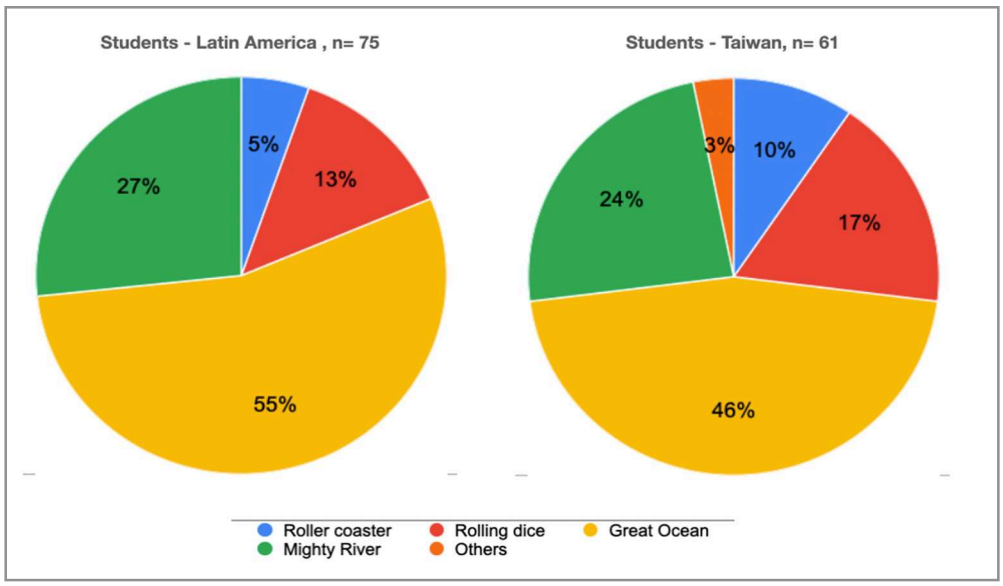

Fig 1: Our Images of the Future: Students

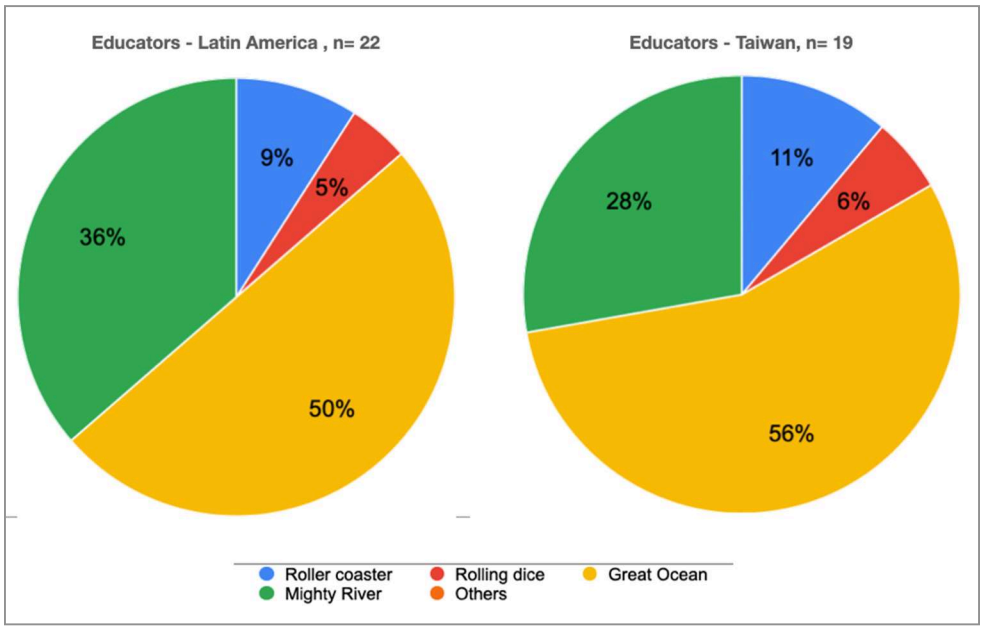

Fig 2: Our Images of the Future: Teacher

Following from choosing a metaphor that best describe their feelings about the future, the participants were asked to reflect on their choice of metaphors. Their feedback were coded and clustered to uncover emerging themes. A

comparative analysis was conducted on the two sets of data to tease out the similarities and difference on the feedback from Taiwan and Latin America.

Student Reflection on their Images of the Future

The analysis of both sets of data reveals several common themes related to students' perceptions of the future. These shared themes emphasise the uncertainty and complexity of the future, the importance of personal agency and control, the presence of hope and resilience in the face of challenges, and the use of metaphors to represent the dynamic nature of the future. Students from the two parts of the world acknowledge the unpredictable nature of life and the need to adapt to uncertainties. They express a belief in their ability to make decisions and navigate their paths, demonstrating a sense of hope and optimism for a fulfilling future. Furthermore, the use of metaphors such as the ocean, river, and journey serves as a means to convey the multifaceted and ever-changing aspects of their future perspectives.

Students from Taiwan focus on the influence of external factors, such as societal norms, climate change, and uncontrollable forces of nature, on shaping the future. They also explicitly discuss the influence of external forces and systems, such as society and government, on shaping the future. These students recognise the impact of these external elements on their choices and direction. These themes were not explicitly present in the reflections from Latin America.

One student quotes a metaphor different from the options provided, (translated from Chinese)

> "This clay starts with different shape, and then turn in many shape of what we want. In different phases we have different thoughts, and we change some portion of it close to that. Many portions build up to a big clay. Then, this is us. It has nothing to do with right or not, it's matter what we choose to be or what we think."

Some verbatim quotes from students:

> "This metaphor (the ocean) is so relevant and means a lot for our future.We live only once so we can decide what we have to do. In this world there are a lot of choices and every choice we make will determine our future."

> "The future for me is like all of the four metaphors. It's like a Rollercoaster and a river because we all going to die one day, it is like an ocean because we can shape our destiny based on our decisions, and it is also like a dice because we don't have control over everything."

Students from Latin America reflected on the acceptance of uncertainty and hope in the face of life's challenges. Students express their willingness to embrace uncertainty and unexpected opportunities that may alter their future path. Additionally, there was a strong focus on viewing the future as a continuous learning process with an emphasis on the importance of education. These themes were not explicitly present in the reflections from Taiwan.

Some verbatim quotes from the Latin American students (translated from Spanish)

> "I feel that we can all be capable of seeking our own goals and despite what lies ahead, be prepared to face the storms."

> "I feel that I still don't have an idea of what my future is about, many things can happen, but at the end of the day I will reach my destination, which is my goal."

> "I feel that I have the freedom to make my own decisions, to find the path that I want to follow in my life, and despite the obstacles or setbacks that I have, they are not an impediment."

> "I feel that as a society we see ourselves together towards a future, be it bad or good."

Teacher Reflections on Their Images of the Future

Teachers from Taiwan expressed a perception of uncertainty and chance, seeing the future as unpredictable and beyond their full control. Participants likened life to rolling dice, acknowledging both fortunate and unfortunate outcomes. Teachers also expressed limited control over their futures, feeling guided by societal expectations, familial plans, and established rules. After the workshop, they recognise opportunities and embrace the potential to actively improve their situations, suggesting a newfound sense of agency. The workshop appears to have some impact on their perspectives, prompting a reevaluation of their roles and possibilities in shaping their future trajectories. Some quotes from the Taiwanese teachers (translated from Chinese):

> "I am on a train travelling towards one destination that my family has planned for me, to be a teacher. They paid for my education, and hope that I will be a teacher. They are proud of me and I am happy to be a teacher."

> "I feel like my life was a game of chance, you know, I don't know what might happen so a lot of times it's a lottery - I get lucky. But after the workshop, I feel my life is like kayaking down a river, I peddle and peddle but current takes me down stream - I can try to stop but most times, I'm not a strong swimmer, and I can't manoeuvre the boat. It will follow the current. It's life isn't it, we try and try, and we can't beat the system, just follow them.

The reflections of Latin America teachers reveal diverse perspectives on their future and the forces shaping their paths. They realise the presence of various forces and factors influencing their direction, such as weather, aging, health, new acquaintances, migration of friends, and new job opportunities. While recognising external influences, these teachers emphasise their agency and control over their futures. They take responsibility for their decisions, believing that their present actions shape their future in conjunction with the actions of those around them. They see life as a balance between uncertainty and decision-making, acknowledging the need to navigate through unpredictable events. The teachers view their future as an open sea, brimming with possibilities, and emphasise the importance of skills, tools and goal setting in directing their paths. They are aware of societal influences, perceiving society as a river guiding them in a particular direction while being mindful of the limitations imposed by the current system. While there are certain limitations and constraints in decision-making, they believe in the potential for unexpected changes and embrace the privilege of choosing different paths. Some verbatim quotes from the Latin American teachers (translated from Spanish):

> "I feel that there are forces that push us in a general direction. The weather, aging/health, new acquaintances, friends that migrate, new jobs, etc. We have agency over how we react and what we do with it, but we can't control everything that happens."

> "I am aware of a certain freedom to take one direction or another, but I am also aware of the limitations of the game board that the current system imposes on us."

> "I am at a point where I have worked on myself, and I can recognise that I have the privilege of choosing different paths, just as the ocean presents us. I have the tools and capabilities to choose the path and go towards that destination. Also understanding that there will be times when other issues will happen, like storms at sea, but that I have the privilege of stopping or continuing."

In these narrative responses, teachers from Taiwan and Latin America demonstrate a positive outlook, albeit acknowledging the inherent uncertainty in shaping life outcomes. Taiwanese teachers employ the metaphor of "rolling dice" to symbolise the unpredictability of life and the lack of control, while their Latin American counterparts use the metaphor of an "open sea" to portray the future as brimming with possibilities. The latter group emphasises the balance between uncertainty and decision-making in navigating their paths, thereby highlighting their willingness to embrace potential outcomes.

Section (ii) Navigating the Future

Student Groups

Table 4 summarises the statistical results, mean scores and p-values for student groups. Both student groups were filled with great optimism about the future, Q1 (3.667 / 3.492; p-value: 0.286); they perceive of the future as one of being somewhat surprising, Q2 (3.240/ 3.159; p-value: 0.547); they perceive the future is a continuation of current trends and can be studied, Q3 (3.267/2.968; p-value: 0.475); there is certain degree of helplessness as the future rapidly approaches, Q5 (2.933/3.015; p-value: 0.845), and both student groups display strong willingness to adapt and embrace change, Q7 (3.533/3.429; p-value: 0.2684). Their responses for these four questions (Q1, Q2, Q3, Q5, Q7) were not significantly different.

The responses from the two groups were significantly different for Q4 where more Taiwanese students belief that the future is not knowable and can't be studied (2.867/3.429; p-value: 0.0064) and for Q6, the Latin Americans have more propensity in thinking about possibilities for their future (3.800/3.159; p-value: 0.0000).

Table 4: Section (ii) t-test statistical analysis p-value: Student Groups

Student Group T-test (two-tailed, unpaired, independent sample)			
Section (ii)	Latin America Mean	Taiwan Mean	t-test/p-value **p<.001; *p<.05
Factor: Change Agent			
Question 1	3.480	3.460	0.892
Question 2	3.240	3.159	0.547
Question 3	3.106	2.968	0.690
Question 4	2.867	3.429	0.0064*
Question 7	3.533	3.429	0.2684
Factor: Longer Term Thinking			
Question 5	2.853	3.016	0.497
Question 6	3.800	3.159	0.0000**

A deeper dive into the qualitative responses, the students from Taiwan attribute the surprising element of the future to natural disasters such as the disruptions caused by the Covid-19 pandemic, which was most likely due to recency effect. They used terms like "surprising," "unexpected events," "the future is unknown," "can't see what's to come," "never know what's gonna hit you," and "we don't know what's coming" to convey their feelings of surprise and uncertainty regarding future events. Additionally, the students discuss the consequences of human actions, such as climate change, deforestation, and government decisions, and how these actions can lead to unpredictable and surprising outcomes in the future. The Taiwanese students express ambivalence and uncertainty about the future, acknowledging mixed feelings about what lies ahead due to external factors like corruption, global issues, uncertainties, lack of control, and anxieties.

The students from Latin America express feelings of surprise when unexpected events occurred or when certain

situations that they did not anticipate unfolded. There were also students who mention that they were not particularly surprised by the future, either because they have learned to expect change and uncertainties or because they were aware of potential challenges and consequences based on current actions and behaviours. The findings reveal the complex emotions and perceptions of the Latin American students towards uncertainties and the future. They describe a wide range of feelings, including vulnerability, fear, acceptance of change, expectations, and awareness of human impact. In both sets of data, the students' reflections offer valuable insights into how they navigate and make sense of the uncertainties that lie ahead.

Table 5 presents the mean score and p-values for the two teacher groups. The teachers from both Latin America and Taiwan have a very positive outlook about the future, Q1 (3.636 / 3.684; p-value: 0.8138); grasp the elusive and discernible nature of the future, Q2 (2.772/ 2.684; p-value: 0.1701); they perceived the future as an evolution, to some extent, of ongoing trends, Q3 (2.955/3.316; p-value: 0.475); they do not experience a sense of helplessness despite the rapidly approaching future, Q5 (2.409/3.052; p-value: 0.497); and the Taiwanese teachers were more eager to take initiatives to adapt and change in their lives, Q7 (2.000/3.368; p-value:0.6770) Their responses for these five questions (Q1, Q2, Q3, Q5, Q7) were not significantly different.

There were significant differences in the two data sets, where the Taiwanese more contend with the future is not-knowable as compared with the Latin Americans, Q4 (2.867/3.429; p-value: 0.0064) and both groups strongly agree that there are lots of possibilities for the next 10 years, Q6 (3.800/3.159; p-value: 0.0000).

Table 5: Section (ii) t-test statistical analysis p-value: Teacher Groups

Teacher Group T-test (two-tailed, unpaired, independent sample)			
Section (ii)	Latin America Mean	Taiwan Mean	t-test/p-value **p<.001; *p<.05
Factor: Change Agent			
Question 1	3.636	3.684	0.8138
Question 2	2.772	2.684	0.7559
Question 3	2.955	3.316	0.1701
Question 4	2.409	3.000	0.0205 *
Question 7	2.000	3.368	0.6770
Factor: Longer Term Thinking			
Question 5	2.409	3.052	0.497
Question 6	3.409	2.000	0.0000 **

Both groups of teachers recognise the influence of external forces and factors on their future trajectories. Taiwanese teachers attribute this influence to societal expectations and established rules, whereas Latin American teachers reference forces such as weather, aging, new acquaintances, and job opportunities. Despite these external influences, both groups emphasise empowerment and agency over their futures. Taiwanese teachers express a newfound sense of agency after participating in a workshop, while Latin American teachers stress their ownership of following and guiding their future paths.

The teachers reflect on unexpected and surprising events, acknowledging the erratic nature of the world. They express feelings of shock and uncertainty, particularly in response to events such as natural disasters or the Covid-19 pandemic. The Latin American teachers, in particular, convey a belief in the vast array of possibilities, underlining their openness to potential outcomes. Taiwanese teachers tend to focus more on the unexpected events and consequences of actions, signaling a heightened awareness of the uncertainty and ambiguity of the future.

These distinct perspectives may be influenced by their respective cultural backgrounds. The cautious and contemplative outlook expressed by the Latin American teachers aligns with a cultural value that encourages considering multiple perspectives and scenarios, a stance also based on the experience of living in specific contexts and systems, as mentioned by one of the teachers" "Guatemala has taught me to improvise". Conversely, the Taiwanese teachers' reflections on consequences and the uncountable nature of change resonate with a worldview that emphasises cause-and-effect relationships and a belief in natural processes.

Section (iii) Collaborative Learning

The third section of the study delves into the collaborative learning environment and consists of three carefully selected questions for student groups and five questions for teacher groups.

Tables 6 and 7 present mean scores and p-values for learning outcomes from the workshops. The workshops were designed to encourage socialisation of learning and peer-to-peer engagement, as Abdullah (2023) prescribes, "collaborative learning works well for futures studies as the subject is highly conceptual, perceptual, and foggy, more descriptive than prescriptive, (allowing for the)… exploration and learning about the questions, 'what's there' and what ifs " (p2).

Both Latin American and Taiwanese teacher (Table 7) and student (Table 6) groups perceive that working with others help students learn better, Q9(Student:3.693 /2.905; p-value: 0.0000; Teacher: 3.500/3.105; p-value:0.1424); help students see things from different perspectives, Q10 (Student:3.840/ 3.016; p-value: 0.000; Teacher: 3.782/3.053; p-value:0.0021); and help students understand others better, Q11 (Student:3.867/3.000; p-value: 0.0000; Teacher: 3.727/3.211; p-value:0.023).

Students from both countries appreciate the positive interactions facilitated by working with others. The student responses for all three questions were significantly different, which could well be that individuals (Latin American) with a more sociable disposition and a greater willingness to voice their ideas perceived significant advantages from such a setting.

Teachers from Latin America were more comfortable with students working collaboratively than their Taiwanese counter-part, Q8 (2.273/3.053; p-value:0.0244). Both groups of teachers appreciate that collaborative learning can cultivate pluralism among students, Q12 (3.682/3.473; p-value:0.3723).

Table 6: Section (iii) t-test statistical analysis p-value: Student Groups

Student Groups: T-test (two-tailed, unpaired, independent sample)			
Section (iii)	Latin America Mean	Taiwan Mean	t-test/p-value **p<.001; *p<.05
Question 9	3.693	2.905	0.0000**
Question 10	3.840	3.016	0.0000**
Question 11	3.867	3.000	0.0000**

Table 7: Section (iii) t-test statistical analysis p-value: Teacher Groups

Teacher Groups T-test (two-tailed, unpaired, independent sample)			
Section (iii)	Latin America Mean score	Taiwan Mean score	t-test/p-value **p<.001; *p<.05
Question 8	2.273	3.053	0.0244 *
Question 9	3.500	3.105	0.1424
Question 10	3.782	3.053	0.0021 *
Question 11	3.727	3.211	0.023 *
Question 12	3.682	3.473	0.3723

Summary

This comparative study shines light on the collective ways of seeing the world shared by two communities that are ocean's apart and culturally divergent.

While the two groups of participants seemingly demonstrated similar tendencies towards being hopeful and willingness to adapt in anticipating looming uncertainties, we have to be more sensitive to the role of values, beliefs, myths and symbols that people use to shape the world, as Wildman & Inayatullah (1996) strongly advocate. In this concluding section, the mindscapes of diverse cultures, as presented by Wildman & Inayatullah (1996), become highly relevant, helping to explain the reference points and values held by both communities when contemplating the future. This understanding carries significant implications for teaching the future.

> "…our ways of knowing, paradigms, mindscapes, all force us to be more sensitive to: different ways of thinking; how different cultural backgrounds can influence this; and, most important, our own mindscape and to value differing mindscapes" Wildman & Inayatullah (1996:733).

The East Asians, whose cultures and practices strongly influenced by religious ideologies such as Daoist, Shinto, Buddhist (Galtung, 1983) i.e. Taiwanese culture, guided by ethical concepts of Confucianism, tends to value harmony, collectivism, and interdependence (Yang, 2019). The use of metaphors to describe the future may reflect a desire to understand and harmonize with the unpredictable aspects of life. By using metaphors like roller coasters,

oceans, and rivers, participants may be emphasizing the importance of adapting and flowing with life's changes with a Confucian emphasis on learning and knowledge (Wildman & Inayatullah, 1996).

Taiwan has a Daoist-Confucian-influenced culture, which values the importance of planning and preparation. The students focused on uncertainty and feelings of control might reflect the cultural emphasis on the need for individuals to exert some level of control over their lives even in uncertain circumstances. Taiwan's cultural context, which includes a strong influence of Taoism and reverence for nature, might explain the consideration of external forces like climate change and the uncontrollable forces of nature in shaping the future. Taiwan's collectivist culture may foster a sense of optimism and hope for the future, with an emphasis on interconnectedness and mutual support.

Mexican and Guatemalan values are strongly influenced by Ibero-Catholic cultures (Harrison, 1998), as well as by indigenous traditions and colonial legacies. The acknowledgment of these external forces and societal norms may reflect a sense of limited agency in shaping the future, due to structural and systemic constraints resulting from a diversity of socio-demographic conditions. The focus on personal agency and control in shaping the future, as Garcia-Preto (1996) defines "personalismo, a form of individualism that values those inner qualities in people that make them unique and give them a sense of self-worth, is another value most Latinos[as] seem to hold" (p151) while at the same time, the Latina/o family unit, unity, inclusiveness and generosity for others originated from respect for and loyalty to the family (Bordas, 2012; National Council of La Raza, 2013), and the role of family stories can be a positive force for achievement, where parents create a culture of possibilities through story telling, their personal faith in the future (Gandara, 1995). The emphasis on hope and resilience in the face of adversity might be linked to the cultural worldview that values individual initiative and overcoming challenges through personal effort.

A person's language influences how a person learns, especially with a second language. "Language reflects the worldviews, the thought processes, and the lifestyles of its people" (DeCapua, 2004). The values of the culture are expressed through language, whether it be communicated nonverbally or spoken in the words of the culture's primary language. Hence, one's native language shapes how a person thinks and perceives knowledge. Participants were encouraged to use their native language in both workshop activities and the post-workshop survey, which allowed them to express themselves more freely.

Overall, the similarities and differences between the two sets of clusters reflect the diverse cultural worldviews and societal contexts of Taiwan, Mexico, and Guatemala. Knowledge frames or mindscapes and cultural factors play a significant role in shaping participants' perceptions of the future, i.e. the way we think or the ways of knowing, influencing the metaphors they use, their attitudes toward uncertainty and control, and their outlook on agency and resilience, and recognising these cultural influences allows for a nuanced understanding of how people from different backgrounds conceptualise and approach the complexities of the future (Wildman & Inayatullah, 1996).

Discussion and Conclusion

To probe deeper into the challenges, we encounter in teaching the future, a causal layered analysis is conducted to peel back the layers and uncover the systemic causes, worldviews we hold and narratives we used in enabling the generation of transformative solutions, as summarised in Table 8.

Table 8: CLA—Current Reality and Transformative Solutions

	Current Reality of Teaching the Future	**Transformative Solutions**
Litany	1) Decontextualisation- teaching the future assuming everyone is the same 2) Evaluation and assessment tools using purely quantitative survey	1) Be cognisant with the space, mindscapes, people and culture 2) Reflective essays and narratives as data to better understand different mindscapes
Systemic	Western-centric epistemological assumptions.	1) Feminist Futures 2) Constructivism in teaching philosophy, practice & approach
Worldviews	Westerner supremacy	Gender Fluidity, Constructivism, Pluralism, Participatory Futures
Metaphor	One size fits all teaching model Futures Studies only for the elites	Futures Studies is an inclusive and supportive space where everyone's voice is valued and celebrated. Futures Studies is a bountiful garden where every plant thrives and flourishes.

Litany

Slaughter (1989) cautions against relying solely on decontextualized abstractions in futures discourse, emphasizing the influence of traditions and speech communities. Stories hold significant social realities and offer unique perspectives on the future, beyond reason and analysis alone. The journey toward sustainable ways of life is collective and unpredictable, demanding diverse contributions. Steele (2010) asserts that the spectrum of "how-to" impart content and tools regarding the future is ever-growing and emerging. He asks "what are some considerations that need to be addressed when we "educate for foresight?" (P97).

For the workshops, the Futures Triangle worked well as a framework for teaching the future. Teachers and students were able to apply the Futures Triangle in mapping and articulating their thoughts about the future, enabling them to make sense of our world. It facilitates the exploration of possible and plausible futures, the interpretation of historical events, the alignment of current circumstances, the integration of knowledge and values, and the promotion of democratic engagement in envisioning preferred futures.

Given the time constraints during our workshops, we opted to present carefully curated pictures of current events, news, weird or strange phenomena that align with participants' interests. These visuals served as thought-provoking stimuli, facilitating meaningful discussions within the limited research time available. The teachers and facilitators were apprehensive about the potential biases in the pedagogical tools, as well as the need to recognise the individual conditions and contexts that shape students' thinking and agency about the future, and their distinct time perceptions, especially among the student groups from Mexico City and Guatemala. That remark served as a reminder to exercise caution regarding certain common assumptions that form the foundation of our facilitation. These assumptions include the following:

- information can be easily accessible,
- currency of information is by default - necessary,
- technology is easily available and accessible,
- students at high school or higher education institutions would have been taught to use technology and would have been well- informed by the easily available media and databases.
- western-centric epistemological underpinnings of Futures concepts and frameworks deemed to be applicable in all contexts.

The strength of this study lies in its use of both the Likert-scale numerical responses and thick-descriptive notes from participants as insightful glimpses and windows into the mindscapes of the two groups of community. The

rich and descriptive information supplements the making sense of the resulting numbers from statistical analysis as those narratives 'link the empirical findings with the socio-cultural context within which they are 'discovered' and presented. … it seeks to link 'the litany' of numerical with the underlying frameworks of meaning" Milojevic & Inayatullah (2015:152). We want to acknowledge the process of how the two communities reflect and communicate ideas and viewpoints.

Systemic Challenge and Worldviews

Most tools, methods or approaches were western-centric and were designed based on the assumption of the concept of linearity of time, and that intelligence was hierarchical and often measured by tech-savviness. The dominant assumptions underpinning the design of concepts/methods used in facilitating futures literacy activities/exercises proved unhelpful when applied to culturally diverse backgrounds, as they were limited in accommodating the richness of varied perspectives within the exploratory space. The persistence of supremacy stems from the perception that Westerners are considered smarter and superior in people's minds - particularly the Global South. We often use models and frameworks designed based on western culture without questioning or having the opportunity to question its applicability and/or relevance.

Transformative worldviews and solutions

Gender Fluidity, Constructivism in Teaching Philosophy, Practice and Approach

The field of futures studies is notorious for being male dominated, resulting in discrepancies in the way that most people think about future trends and alternatives, and consequently narrowing the possibilities of becoming truly ourselves. Brock (2008) warns against the detrimental factory model of 'one-size fits all' education, which, by fixating on the past, can hinder futures thinking.

Dator (2022:79-89) and Milojevic (1999:65) demands that our images of the future must stop making reference to science fiction, war games: who has the bigger nuclear weapons, who are more powerful with an "idiotic obsession with death, killing and self-destruction"; and instead we strive to put forth "what has always been extremely important to us, personal relationships, family and community, to the societal level". Milojevic, who champions feminising futures studies and the 'women's ways of knowing' (1999:68) quoting Boulding "that technology be used in a sophisticated and careful way to ensure humanised, interactive, nurturing and non-bureaucratic societies" — with the explosion of generative AI and large language models, it is a timely reminder that we need to be careful about how we use technology.

The results of the study emphasise the need for a critical approach, as identified by Barendregt, Bendor & Van Eekelen (2023), when designing futures education, to promote one that focuses on creating opportunities for student to identify, analyse and critique conceptions of futures that exist within their contexts. We ought to be receptive towards a constructivism paradigm when designing learning environments. Constructivist learning environments, acknowledging pluralism, empower students to explore futures on their terms while understanding the impact of structural forces, everyday conditions, and cultural contexts on their imagination (Fuller & Loogma, 2009). Constructivist teaching involves creating a conducive environment, linking new and old knowledge, and considering students' real-life situations.

The teaching context should be rich, communication-oriented, and focused on action (de Haan & Rülcker, 2009; Huschke-Rhein, 1998). It aims to foster self-discovery by explaining relevance, making classes emotionally and motivationally engaging, and encouraging experimentation. This approach promotes student autonomy and meaningful learning experiences, facilitating a deeper understanding of future possibilities and their significance in different contexts. Students needs learning environments that foster questioning such assumptions, transcending limited identities, promoting harmony, understanding, and peace. Students feel more connected and safe if we model curricula and learning environment that demonstrate mutual respect, and being open diverse and often differing opinions (Kelly, 2006). Cooper (2012) finds Latinas students learn and engage better in classroom when they felt safe, where they found spaces that positively support their identity, and spaces that conveyed value and importance of content.

Teachers believe in and students welcome the idea of working with others to learn better. In the process, they learned about agency, about courage, about the process of considering alternative futures. Facilitators/teachers to assume different roles: a coach, gamer, designer, or mentor as Chen & Hsu (2020) prescribe; be cognisant about the people and place where teaching the future takes place (Wildman & Inayatuallah, 1998); subscribe to constructivism when teaching and constructing futures (Fuller & Loogma, 2009). Therefore, to contextualize materials effectively, we must understand local culture and native language, perceptions, and mindscapes.

Metaphors

Based on the narratives and feedback from the study, we ought to shift from 'One size fits all' and "Elite Futures" to "Futures is an inclusive and supportive space where everyone's voice is valued and celebrated" and "Futures is a bountiful garden where every plant thrives and flourishes".

Conclusion

The survey findings revealed that teachers' and students' ability to visualise images of the future is influenced by their diverse cultural, religious backgrounds, native languages (DeCapua, 2004), and different ways of knowing (Wildman & Inayatullah, 1996).

The section on causal layered analysis (CLA) discusses the challenges of teaching about the future and proposes a more transformative approach to futurizing education. By understanding these influences and challenges, we can develop more nuanced and culturally responsive curricula that better serve a wider group of students.

In the Global South, many people perceive futures studies as an elitist field limited to academia and corporations. This perception prevent diverse communities from developing futures literacy. In our pursuit of inclusivity, we strive to make futures studies accessible to all, enabling active participation from wider audiences. To achieve this, we must tailor educational resources and workshops to suit diverse communities, support local initiatives, and integrate indigenous knowledge systems. Embracing a multitude of perspectives enriches the discipline, empowering us to navigate the ever-changing world with collective wisdom and resilience.

Through partnerships among academia, the broader community, local organizations, and governments, along with efforts to feminize futures, we can cultivate a more inclusive approach to both the study and practice of futures studies.

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