Transforming holistic competency development and assessment in education and beyond

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19 June 2020
Holistic Competencies and Virtues Education (HAVE)

Holistic competency (HC) is an umbrella term including different types of generic skills (e.g., creativity; problem-solving), positive values and attitudes (e.g., appreciation; integrity; respect). These competencies are not only important for students’ career, but also for their well-rounded development as a person (Chan et al., 2017; Chan & Yeung, 2019).

Cecilia’s HC research has achieved a range of significant impacts worldwide, especially in the following areas:

1. Empowering students worldwide to self-assess and recognize their strengths and weaknesses in HC
2. Industry partnership and donation in developing and assessing students’ and graduates’ HC
3. Educators’ professional development in developing and assessing students’ HC
4. Societal awareness and knowledge of HC
5. Developing students’ HCs
6. Initiating a shift in education culture

“全能”發展顯本領，有才有智更“有情”
With Hearts, We Transform
Underpinning Research – an Overview

Contextual information:

Innovativeness and significance:

- Cecilia’s HC frameworks/models address a number of research gaps in HC education. Her Generic Skills Perception Instrument is among the first to validly measure students’ self-assessment of their HCs; her 4D framework on student HC assessment literacy for the first time illustrates what students need to know and do to improve HC assessment; her HCD framework and Chain of Mirrors provide powerful tools for educators to incorporate HC development into activities and the curriculum design.

- These studies not only facilitate a deeper understanding of students’ HC development, but also offer practical guidance/theoretical underpinning to a range of educational reforms at all levels of education.

When?

For over 15 years, Cecilia has dedicated her research to the development and assessment of holistic competencies and her professionalism in this field has gained recognition both locally and internationally.

Role in the creation of such knowledge:

Cecilia is the corresponding author and principal investigator of her research on holistic competencies.

Role in the creation of such knowledge:

3 GRF Grants
2 UGC T&L Grants
1 UGC Matching Fund
External Donation
Outstanding Young Researcher Award
Many internal funds
## Underpinning Research (1) – Generic Skills Perception Instrument

<table>
<thead>
<tr>
<th>Outline</th>
<th>Two instruments have been developed. One specific for engineering (Chan et al, 2017), the other one is for all disciplines (Chan &amp; Luk, 2020). Generic Skills Perception Instrument is the first validated instrument for students to self-assess their HC level and probe into their perceived importance of HCs. This instrument is important because students’ perceptions and attitudes have an important bearing on their motivation and engagement in HC development. It also provides a reliable means for policymakers and educators to understand students’ perspectives and thus to better integrate HCs into the curriculum. Adopted by many universities worldwide, the Instrument enables benchmarking across disciplines and countries.</th>
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<tbody>
<tr>
<td>Time</td>
<td>2015-2016; 2018-2019</td>
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<tr>
<td>Role</td>
<td>Principal investigator; first author</td>
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<tr>
<td>Contextual info</td>
<td>The research involved 1241 engineering students from 3 universities in Hong Kong (1) The second research involved 2192 students from 6 universities in Hong Kong (2)</td>
</tr>
<tr>
<td>Key findings</td>
<td>Exploratory factor analysis resulted in eight scales and six scales respectively.</td>
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Holistic Competency Development Framework (HCDF) (Chan & Yeung, 2019) provides guidance on how to integrate HC development into students’ extra-curricular and in-class learning experiences. Five key components were identified: (1) students’ characteristics; (2) rationale for learning; (3) students’ actual and perceived learning experience; (4) students’ approaches to developing HCs; and (5) students’ HC development.

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**Contextual info**
- In response to the global imperative of nurturing all-round students, educational institutions and schools worldwide have been developing learning activities targeting HC development of students. However, there have been resistance and challenges on how to develop such competencies (Chan et al, 2017). Extending the Presage-Process-Product (3P) framework to HC development, this study examined the relationship between students’ motivation, perception, their approach to develop, and learning outcomes in those activities.
- The research involved 329 students from 6 secondary schools in Hong Kong.

**Key findings**
At the heart of this model is students’ ‘Approach to develop’ HCs, i.e. their level of engagement in HC activities. It was found that students’ rationale, their actual and perceived learning experiences could influence the development approach they take.

Assumption is that students who are going through this framework, are already willing to participate the learning activity.

*A Classification of the types of learning activities (in-class, out-of-class and extra-curricular).

*A learner is considered as an “engager” if he/she takes the opportunity of engaging in an activity; the development of holistic competencies is welcomed and practiced; student is considered as an “avoider” if they avoid the activities, thus there is little room for holistic competencies development.

Underpinning Research (3) - Chain of Mirrors, the Metacognitive Learning Process

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<tr>
<th>Outline</th>
<th>This Process facilitates teachers to design a curriculum that maximises students’ HC development in and out of class. It highlights the ‘must’ elements that teachers need to provide for students to fully develop their competencies.</th>
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<td>Time</td>
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<tr>
<td>Key findings</td>
<td>These elements include the Rationale for Participating, Self-Understanding, Expectation, Experience, Learning, Reflection, and Self- and Peer-Appraisal. A number of programmes have been designed using the ‘Chain of Mirrors’ to enhance students’ HCs in secondary schools and universities.</td>
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Underpinning Research (4) – A Four-dimensional Framework of Student HC Assessment Literacy

| Outline & Innovativeness & Key findings | This is the first framework to conceptualise student assessment literacy in HC, which incorporates 4 dimensions (i.e. Knowledge, Attitude, Action, and Critique). The framework is an important advancement in the field of education because it for the first time outlines what students need to know and do to implement valid HC assessment, foregrounding students’ agency in this process. Cecilia is now working in partnership with many universities worldwide to promote this framework, as well as designing curriculum to cultivate students’ HC assessment literacy. |
| Time | 2018-2020 |
| Role | Principal investigator; first author |
| Contextual info | • As many universities worldwide have incorporated HC development into their course goals, developing assessment literacy in these competencies is placed high on the agenda. Yet, existing literatures on assessment literacy tend to focus on disciplinary knowledge, with little reference to HCs. • The research involved 122 student interviews from 6 universities in Hong Kong |

Engagement (1) – Adoption of research instrument worldwide

**Australia**
*The School of Dentistry and Oral Health and the School of Medicine at Griffith University*

605 students from the School of Dentistry and Oral Health have already been administered using Cecilia’s instrument, and the teachers are using the findings to revamp their curriculum.

**Malaysia**
*The Engineering Faculty at INTI International University*

The Engineering Faculty at INTI International University is also adopting Cecilia’s instrument and YOCLE to assess and enhance its students’ HC development.

**Taiwan, Thailand, India, UAE & Australia (in progress)**
*National Taiwan University, Taiwan, King Mongkut’s University of Technology Thonburi, Prince of Songkla University, Thailand, BITS Pilani, India, Higher Colleges of Technology, UAE and the University of Sydney, Australia.*

Working with Cecilia to implement the instrument and her approaches to the assessment of holistic competencies for their students.

**Hong Kong**

In Hong Kong, six universities (HKU, HKUST, CUHK, HKBU, LingnanU and EdUHK) are also using the instrument and Cecilia is leading them in a collaborative development programme.

Data on 5,000 students have been collected to provide the researchers with a large benchmarking sample on student development and the assessment of holistic competency in Hong Kong.
Engagement (2) – Implementation of HC activities

Secondary education level:
Cecilia and her team designed a series of HC development activities for school students based on her HCDF and Chain of Mirrors frameworks. In 2017, a four-full-day programme for secondary school students (known widely as the HAVE, U Can programme) was successfully launched. The programme was conducted seven times for seven different secondary schools in Hong Kong, with over 1,000 students participating. The impact from teachers and students are shown in letters correspondence.
Engagement (2) – Implementation of HC activities

Higher education level:
In 2018, Cecilia led six Hong Kong universities to organise an enhanced version of the HAVE, U Can residential programme for university students. The programme was facilitated by trained university-student mentors who guided junior university students in their HC development. It was the largest student cross-institutional programme in Hong Kong.
Mentoring toolkit and guides have been designed and developed for dissemination to schools and educational institutions.
Engagement (3) – Disseminating research outputs via public talks, workshops and lectures

Cecilia has provided many consultations and professional development workshops for non-profit, government-related organisations and universities in various countries, including South Korea, China, Singapore, Malaysia, Macau, Spain, Philippines, India, Iran, UAE, Thailand and Estonia.
Impacts (1) – Empowering students worldwide to self-assess and recognize their strengths and weaknesses in HC

The Dean of Engineering and Quantity Surveying stated:
‘Through employing Dr Chan’s latest research inventory and e-platform (YOCLE) on generic skills and organising masterclasses to improve the teaching and assessment of generic skills, I believe not only that students from INTI will benefit from this process, but that we will contribute to transforming the education landscape and mindsets towards more balanced, holistic development of our students.’

The President of LingnanU stated:
‘Dr Chan’s instruments have been adopted by higher education institutions outside of Hong Kong. Comparisons with foreign institutions would mark where our university is stationed regarding generic skills and competencies.’

Students using the instrument reported:
‘The questionnaire has helped me to reflect on my level of holistic competencies and to better realise the importance of holistic competency development.’

In addition, many organisations are in support of Dr. Chan’s work.
Impact (2) – Industry partnership and donation in developing and assessing students’ and graduates’ HC

A technology company has adopted Cecilia’s research frameworks and a modified version of her instrument to develop a multi-deployment platform YOCLE. YOCLE (Your Out-Of-Classroom Learning Experience) is an e-platform dedicated to promoting students’ HC development. YOCLE incorporates a range of resource and functions, including the mentioned validated instrument, various assessment approaches, rubrics, and feedback systems, to record and provide concrete evidence of students’ HC development. According to the Director of this company, this e-platform has already been used by over 30 schools and universities. In addition, Dr. Chan received company donation and UGC matching fund to further her research.
Impact (3) – Educators’ professional development in developing and assessing students’ HC

Professional development:
Cecilia’s workshops and lectures have benefited a number of teachers in understanding, developing and assessing students’ HCs. Her work has disseminated in many countries. Most recently, Cecilia has received a request from the Wake County Public Schools in the US to use one of her videos as part of their online professional development course. It will be used as training materials for all the schools in the Wake County in the United States.
Impact (4) – Enhancing societal awareness and knowledge of HCs

Resource: Cecilia developed an Assessment Resources website where she and her team share substantial resources for teachers to assess and develop students’ HCs and other knowledge. The total number of unique visitors to the website between October 2010 and June 2019 was over 10 million.

Public talks: Cecilia has shared her insights and experience in HC development through multiple public talks and newspaper e.g. UNESCO, Times Higher Education, Times Education Supplement, Women Foundation, Estonia Newspaper.
Impact (4) – Enhancing societal awareness and knowledge of HCs

Media coverage:
Cecilia’s research and practice (particularly the HAVE U Can programme) have received plentiful media coverage locally and internationally. Media publicity has contributed to raising societal awareness and knowledge of students’ HC development.
Impacts (5) – Developing students’ HCs

HAVE, U Can programme for University students

Factual statements from student participants:

‘The programme has really given me the opportunity to overcome mental hurdles and enhance self-confidence.’

‘I have refined my skills in leadership, socialising, and presentation.’

HAVE, U Can programme for Secondary School students

Factual statements from The Principal of Cognitio College (HK):

‘Dr Chan’s work was able to engage the students to reflect on and develop their generic skills, particularly some of the affective skills such as respect, consideration and resilience.’

Media coverage: secondary students making knots of hearts to share their good wishes with the public Singpao Daily News.
Impacts (5) – Developing students’ HCs

HAVE, U Can programme for Secondary School students

Factual statements from students:

“My relationship with my father is not that good, or maybe only the way I treat him is not that good, and not very long after I finished mentoring at the workshop, it was my father’s birthday. In the past, even if it was his birthday, I would not say something very impressive or something that came from my heart. However, this time, I made a big step to help to improve the relationship and said ‘sorry’ and ‘I love you’ to him, which are things I did not say for years. Maybe you will think that it is easy to say, but for me, it is really hard. Moreover, I am a person who hates doing housework and almost never does it, but one time, I did, because I knew my dad was a bit sick, and I think this shows consideration. I think this change came after seeing the video of the parents’ interviews and how the students acted when they saw it in the [HAVE, U Can programme]...My father told me that he appreciated it, and this made me feel very happy and proud of myself and the improvement I had made. I also think that I grew up a lot, not just physically, but mentally.”

(With permission from the student)
Impact (6) – Initiating a shift in higher education culture

Between the instruments, the assessment literacy and curriculum guidelines and programmes, many local and international university leaders (e.g., presidents, vice-presidents, deans) explicitly expressed their willingness to support HC education and incorporate more HC activities into the curriculum.

Reflection: My primary mission is to push for an overhauling shift in both culture and education, highlighting that holistic competencies need to become a part of education that is not to be completely overshadowed by academic knowledge, but instead enables further social and life-long learning.

I feel that young people may have lost some of those life-jewels that I would have developed when I was young. There are things that are valuable in life, and if we can help them to find these life-jewels, place the real-value where it is needed, that would be fulfilled my role as a teacher – Cecilia