Measuring the impact of a whole-school benchmark approach career guidance intervention on secondary students in Hong Kong

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Aim

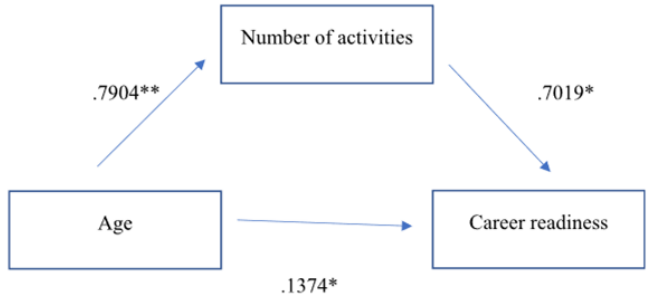
- This present study extended Dodd, Hanson, and Hooley (2021) toward testing beyond the relationship between just career guidance activities and career readiness.
- **Background**: Dodd *et al.* (2021) tested whether engagement in career guidance "as defined by the *Gatsby Benchmarks*" (emphasis added; p. 6) would be positively associated with higher career readiness; this was their method for *providing indirect evidence on Gatsby Benchmarks' effect on students*.
    - Using multiple hierarchical regression analyses, Dodd et al.'s (2021) Study 3 tested "the relationship between career guidance activities and career readiness" (p. 1) and found that "greater participation in career guidance activities was significantly associated with increased career readiness" (p. 1). (See Dodd *et al.*'s MHRA results and models in their Table 7 and Figure 1 [p. 9] excerpted and shown here at the bottom.)
- **Objective 1**: In light of Dodd *et al.* (2021), we went further to examine whether better performances in school-level benchmarks were associated with higher levels of student outcomes, including higher career readiness.
    - Particularly, our present study aimed to test the effect of the *"Hong Kong Benchmark Adoption" program*.

Table 7. OLS multiple hierarchical regression analysis of career readiness.

Variable	Model 1	Model 2	Model 3
Constant	22.658	10.260	13.744
Year of evaluation study	.336**	.334**	.203**
Age		.181**	.045**
Gender		.00	.004
Ethnicity		.011	.017
Number of activities			.254**
Benchmarks achieved			.170**
Adjusted R^2	.113	.146	.220
F change	657.59*	77.32*	239.68*

Note: *$p < .005$, **$p < .001$

Figure 1. Mediation model for age, number of activities and career readiness. $p < .05$*, **$p < .001$.



(Dodd *et al.*, 2021, p. 9)

Note: This study is embedded in a large-scale project evaluation initiative supported by CLAP@JC, in partnership with scholars at the Education University of Hong Kong

Aim

- The *HKBM Adoption* was a program (intervention) that included teachers' professional development training programs, coaching by experts (full-time CLAP@JC staff members), and support groups (called hubs; also led by full-time CLAP@JC staff) to assist a school personnel (career headteacher) on improving CLD education through benchmark implementation.
    - The HK benchmarks (modeled after the Gatsby's) covered three areas: management/leadership/policy (BM1 and BM2), student-oriented skills training and activities (BM3, BM4, BM5, and BM6), and the "enabling" school environment and programs (BM7, BM8, BM9, and BM10).
- **Background**: Ho (under preparation) found that career guidance activities and life goal setting predicted directly career readiness, while school-related self-concept, school-related motivation, and attitude toward school showed significant indirect effect on career readiness. (See Ho's model in the right.)
- **Objective 2**: The present study tested the fit of a **random sample** of student data collected at Time 2 (2022) to Ho's model and examined whether "HKBM Adoption" (treatment) has direct effect on career guidance activities participation, which, in turn, predicts career readiness.

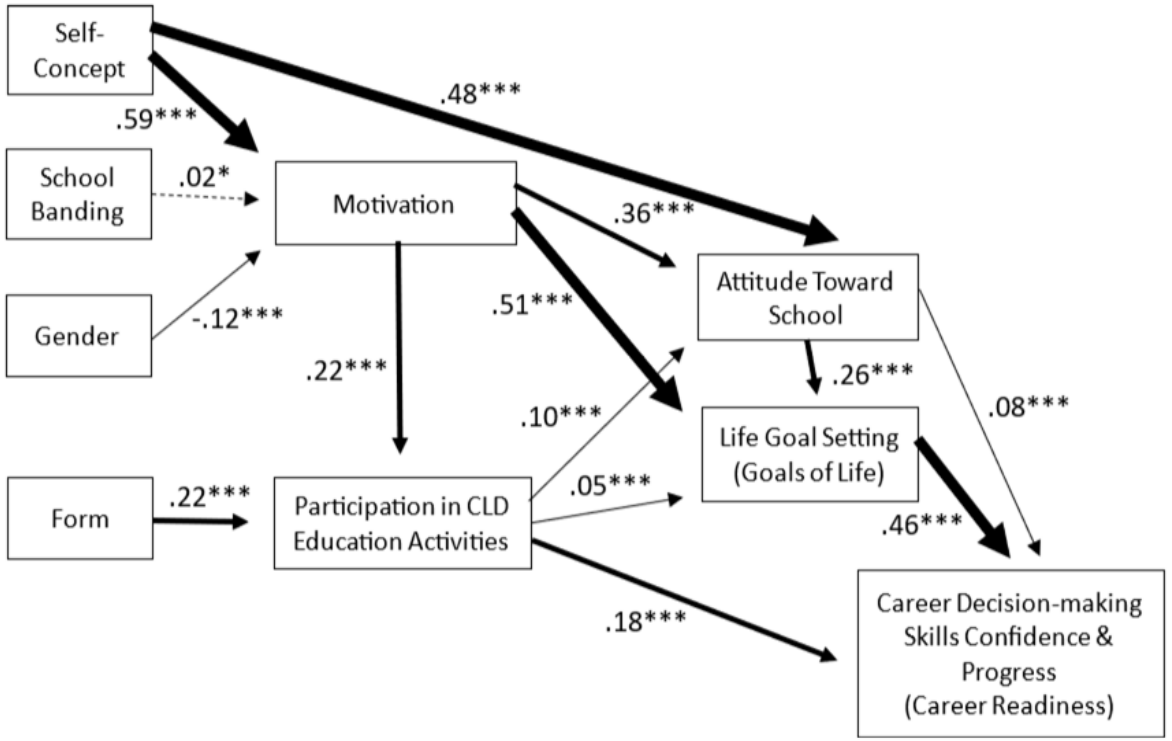


*Figure [].*Model [] with standardized path coefficients for causal paths (represented by straight, single-headed arrows). Coefficients flagged with asterisks are significantly different from zero, $*p < .05$; $**p < .01$; $***p < .001$.

3 Conceptual Models

- The present study tested three models (shown in the right).
- Model 1 tested the fit of the Time 2 (posttest) student data to the paths suggested by Ho (under preparation).
- Model 2 tested the fit of the same data set to Model 1 plus an addition of the "HKBM Adoption" treatment variable (with 1 = treatment, 0 = no treatment).
- Model 3 tested the fit of the same data set to Model 2 plus an addition of career readiness at Time 1.

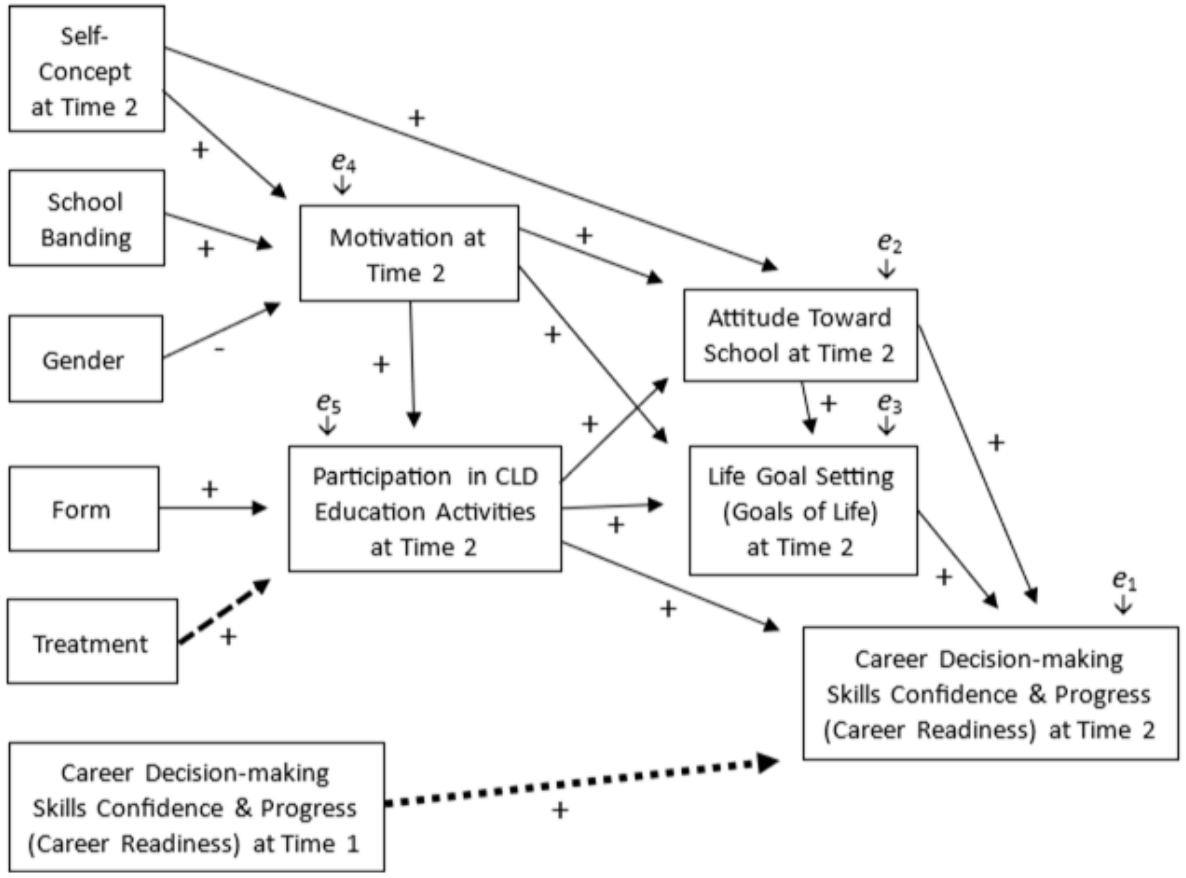


Figure 1. Composite model illustrating three models to be compared. Model 1 consists of the paths represented by solo-line arrows; Model 2 is identical to Model 1, except that Model 2 contains an additional path from treatment to participation in CLD education activities presented by the dashed line arrow; Model 3 is identical to Model 2, except that Model 3 contains an additional path from career decision-making skills confidence & progress at Time 1 to career decision-making skills confidence & progress at Time 2 (represented by the dotted-line arrow).

Sample

- A total of **331 cases of grade 10 (S4) to grade 12 (S6) student data** (164 males, 167 females) were randomly drawn from the large longitudinal data pool of 1,585 cases (877 males, 708 females) of the CLAP@JC project evaluation study.
  - We chose to draw a **random sample** from the large data set to conduct the data analyses, because we wanted to reduce the large discrepancy between the sample sizes of the treatment group and the control group.
- We randomly selected **5 males and 5 females from each grade level** (between grade 10 [i.e., secondary form 4] and grade 12 [i.e., secondary form 6]) from each school with the said available data from the large longitudinal pool.
- The 331 cases in this sample represented **15 treatment (i.e., BM) schools and 2 control schools**.
  - Among the treatment schools, 2 (13.3%) were a band-1 school, 5 (33.3%) a band-2 school, and 8 (53.3%) a band-3 school.
  - Among the control schools, one was a band-1 school and the other a band-3 school.
- In total, the treatment group contained a total of 297 students, with 131 in grade 10 (form 4), 126 in grade 11 (form 5), and 40 in grade 12 (form 6), while the control group contained a total of 34 students with 17 in grade 10, 16 in grade 11, and 1 in grade 12.
  - Among the 297 treatment respondents, 26 (8.8%) were from a **band-1 school**, 101 (34.0%) a **band-2 school**, and 170 (57.2%) a **band-3 school**.
  - Among the 34 control respondents, 19 (55.9%) were from a band-1 school and 15 (44.1%) were from a band-3 school.

Results

Table 1

Path Analysis Results: Fit Indices for Null Models and Three Theoretical Path Models

Model	Model χ^2							
	χ^2	*df*	*p*	χ^2/df	RMSEA (≤ .06)	NFI (≥ .90)	CFI (≥ .95)	TLI (≥ .95)
Null Model of Model 1	617.58	36	<.001	17.16				
Model 1	38.14	22	.018	1.73	.05	.94	.97	.96
Modified Model 1[a]	18.87	11	.063	1.72	.05	.97	.99	.97
Null Model of Model 2	666.58	45	<.001	14.81				
Model 2	82.80	25	<.001	2.76	.07	.88	.92	.87
Modified Model 2[b]	35.68	17	.005	2.10	.06	.94	.97	.95
Null Model of Model 3	748.49	55	<.001	13.61				
Model 3	129.84	39	<.001	3.33	.08	.83	.87	.82
Modified Model 3 (3A)[c]	57.89	23	<.001	2.52	.07	.92	.95	.92
Modified Model 3 (3B)[d]	44.66	21	.002	2.13	.06	.94	.96	.94
Modified Model 3 (3C)[e]	39.62	20	.006	1.98	.06	.94	.97	.95

Note. N = 331. RMSEA = Root-mean-square error of approximation; NFI = Normed-fit index; CFI = Comparative fit index; TLI = Tucker-Lewis index. Model 1 was the path model consisting of solid-line arrows in Figure 1. Model 2 was identical to Model 1, except that Model included an additional path from treatment to posttest participation in CLD education activities. Model 3 was identical to Model 2, except that Model 3 included an additional path from pretest career decision-making skills confidence & progress to posttest career decision-making skills confidence & progress.

[a] Modified Model 1 was identical to Model 1, except that the non-significant exogenous variables (school banding and gender) and non-significant paths (from posttest participation in CLD education activities to posttest attitude toward school and posttest life goal setting) were removed.

[b] Modified Model 2 was identical to Model 2, except that the non-significant exogenous variables (school banding and gender) and non-significant paths (from posttest participation to posttest attitude toward school and posttest life goal setting) were removed.

[c] Modified Model 3 (3A) was identical to Model 3, except that the non-significant exogenous variables (school banding and gender) and non-significant paths (from posttest participation to attitude toward school and posttest life goal setting) were removed and one significant correlation between pretest career decision-making skills confidence & progress and posttest self-concept was added into the model as suggested by the modification index.

[d] Modified Model 3 (3B) was identical to Model 3A, except that Model 3B included one additional direct path from pretest career decision-making skills confidence & progress to posttest motivation as suggested by the modification index.

[e] Modified Model 3 (3C) was identical to Model 3B, except that Model 3C included one additional direct path from pretest career decision-making skills confidence & progress to posttest life goal setting as suggested by the modification index.

Results

- Of the three theoretical models being compared, both the modified version of Model 2 and the final modified version of Model 3 displayed the most acceptable fit to the data.
- Although the modified version of Model 1 (with the non-significant exogenous variables and non-significant paths removed) displayed a significant model chi-square statistic, χ^2 (22, N = 331) = 38.14, $p < .018$, the addition of the treatment variable with a direct path to posttest participation in CLD education activities caused a significant reduction in the model chi-square statistic, $\Delta\chi^2 = 16.81$, $p < .05$.
- This indicated that modified Model 2 provided a fit to the data that was significantly better than the fit provided by modified Model 1.
- In addition, modified Model 2 and modified Model 3 did not differ significantly from each other on chi-square statistics, which means that both models were acceptable.

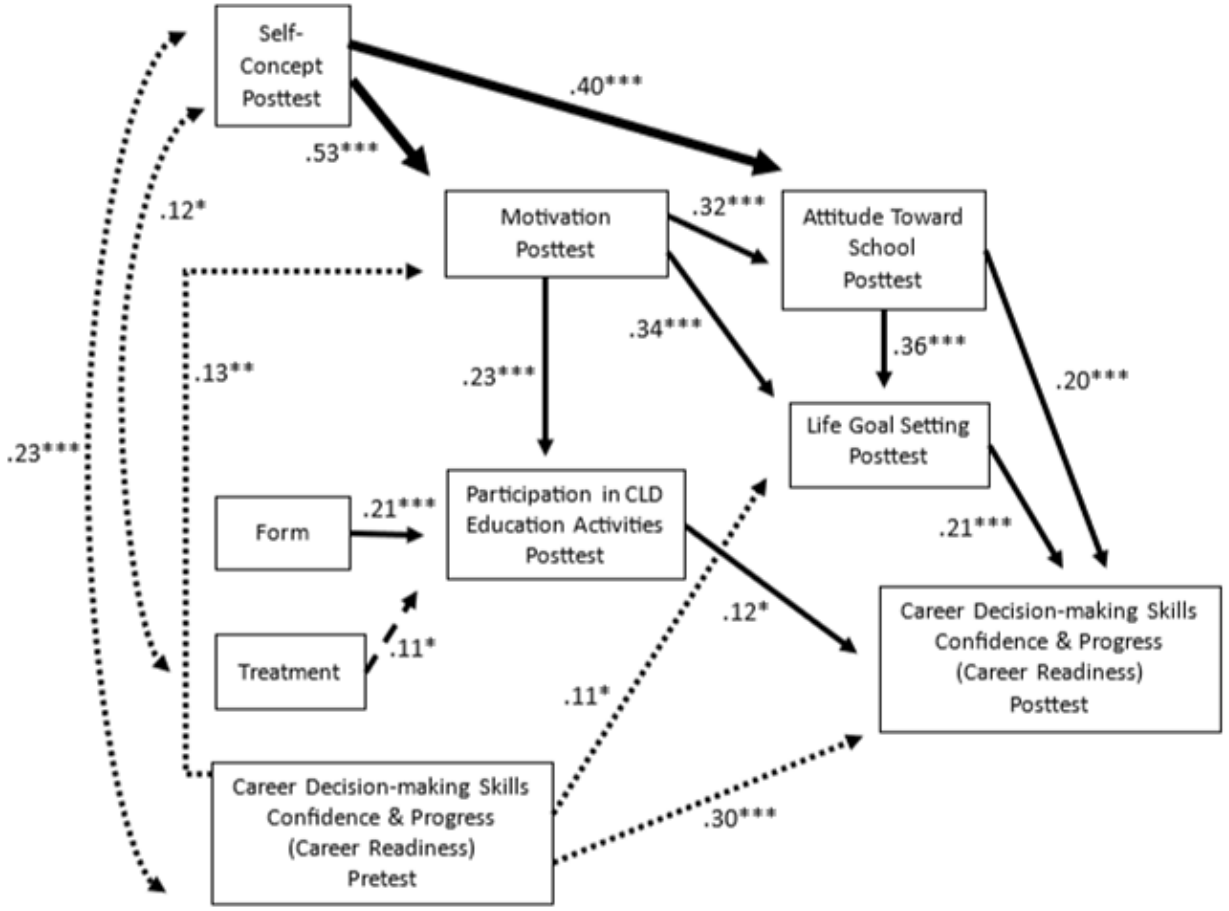
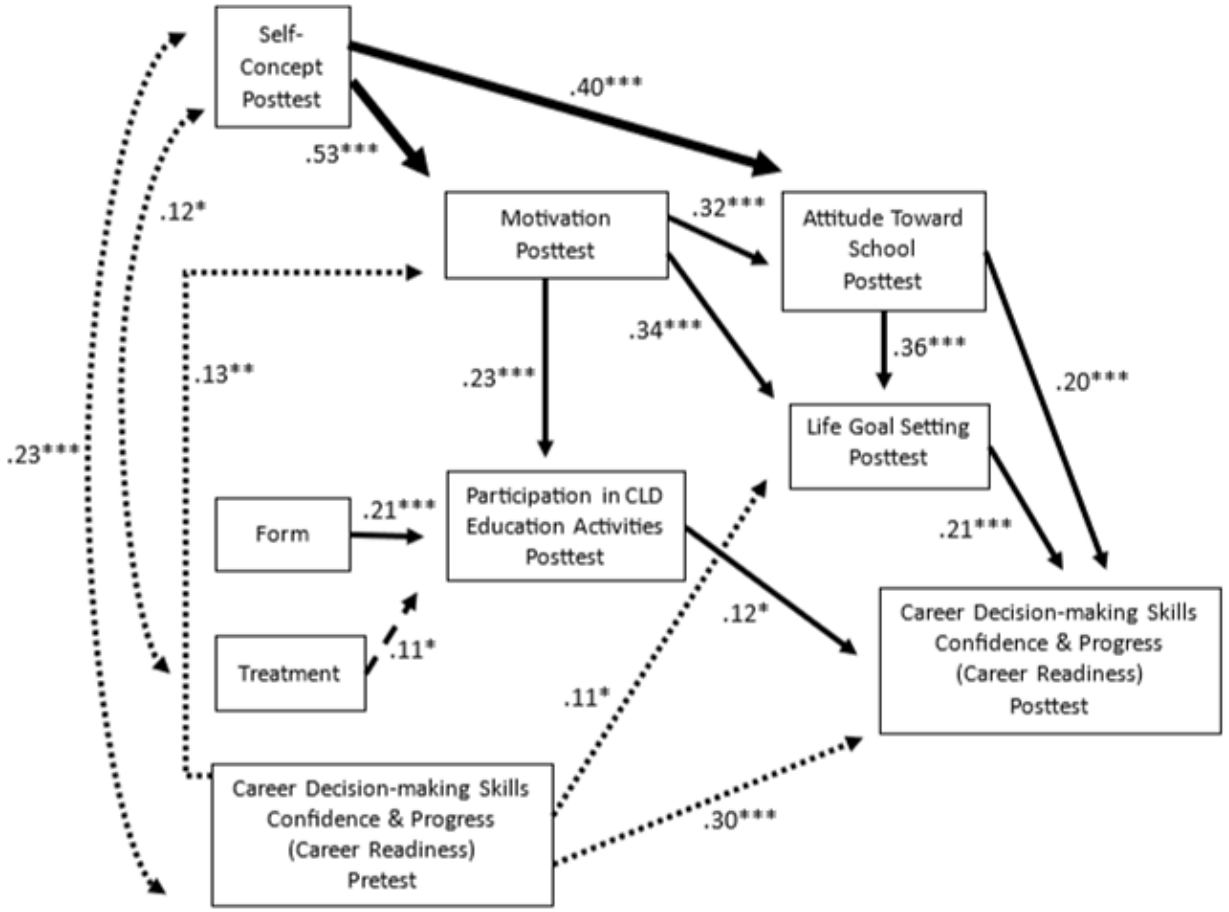


Figure 2. Modified Model 3 (3C) with standardized path coefficients for causal paths (represented by straight, single-headed arrows) and an addition of significant positive correlations between pretest career decision-making skills confidence & progress and posttest self-concept and between treatment and posttest self-concept (represented by a curved, double-headed arrow) and an addition of significant positive paths from pretest career decision-making skills confidence & progress to posttest motivation and posttest life goal setting. Coefficients flagged with asterisks are significantly different from zero, $*p < .05$; $**p < .01$; $***p < .001$.

Implication

- HKBM Adoption (treatment) predicted career guidance activities participation, which, in turn, predicted career readiness.
- HKBM Adoption (treatment) was significantly positively correlated with posttest school-related self-concept (which in turns, predicted career readiness).
    - BM schools' students had higher posttest self-concept than did non-BM schools' students.
- Pretest career readiness predicted posttest motivation, posttest life goal setting, and posttest career readiness.

- **Conclusion**:
    - HKBM Adoption was shown to have **"CLD Activities Participation Enhancement Effects"** and **"Social-Affective Catalytic Effects"** toward enhancing *career readiness*.



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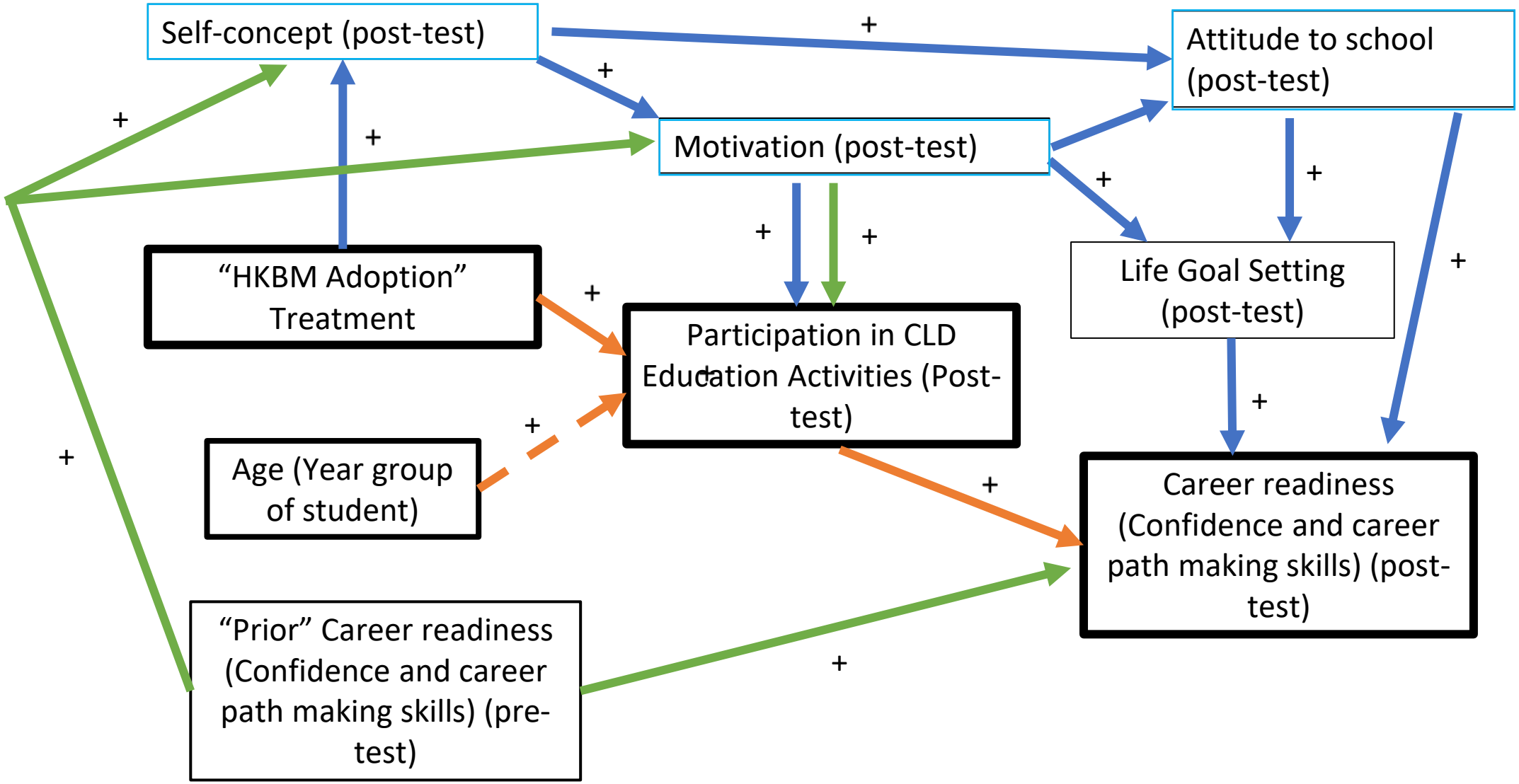
Implication

CLD Activities Participation Enhancement effects

Social Affective Catalytic effects



Influences by Students' *prior* CLD skills/ perceptions and career readiness

Remarks

In this study, it is confirmed that BM Adoption in schools makes positive impact on students' career readiness in the way quite like the study by Dodd et al (2021). In addition, it was also found that the adoption of 'whole-school benchmarks approach Career Guidance intervention' (also known as BM adoption) *not only positively and directly* affected student participation in CLD activities, and then on career readiness, *but also positively & directly* impacted on students' *self-concept* and in turns, on *motivation*, *attitude to schools*, *goals of life* and then *career readiness*. Such ***double-pronged* effects of BM adoption** is explained by the unique value-added-ness of benchmarks in helping the school 'as a coherent whole' (Holman, 2014, p.5) to improve *via* non-activity-based interventions e.g. policies, resource & time allocation, environment/ school culture, subject curriculum teaching, parental engagement, under the specific guidance from BM1, 2, 7, 10 especially. It is perhaps the *essence* of benchmark adoption, for improving career guidance provisions in schools worldwide.

References

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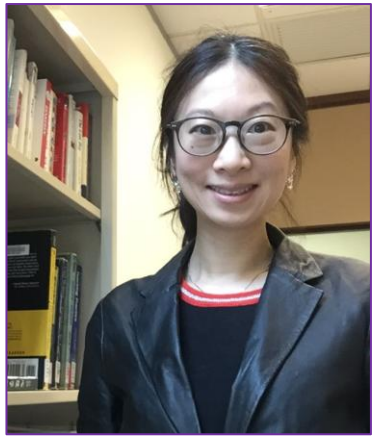

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