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Configuring governmentalized teachers through introspective panopticism inscribed
within their subjectivities in the regime of performativity from the Foucauldian
perspective

Tien-Hui Chiang

thchiang@ahnu.edu.cn

Alison MacKenzie

A.MacKenzie@qub.ac.uk

Wenjing Zeng

20190056@hznu.edu.cn

Allen Thurston

a.thurston@qub.ac.uk

Shuqiong Fu

usnavy@126.com

Yiling Yao

yaoyiling.m@163.com

Abstract:

This paper analyses how teachers contribute to a successful society through a lens of Foucauldian perspective. It uses this lens to analyse how teachers' self-improvement through professional development in the regime of neoliberal governmentality is influenced by society, performativity and professional 'norms'. Data is presented from 3,131 teachers, based in 55 high schools in Zhejiang province China and analysed using Structural Equation Modelling to explore the relationships between these variables. Findings indicated parental attitudes, concept of responsible subjects, and teaching quality rewards significantly influenced the subjectivity-performativity association. The subjectivity-performativity association significantly influenced teacher self-improvement, both directly, and in a relationship that was mediated by teaching efficiency. These correlations intimate that introspective panopticism enshrined within teachers' subjectivities carries performativity.

Keywords: neoliberal governmentality, introspective panopticism, subjectivity, performativity, governmentalized teacher

1. Introduction

For Foucault, in order to secure social security, the sources of social risks need to be identified and dealt with. In a sense, this can be achieved through the practice of governmentality (Foucault, 2010), which turns social members into self-regulators

(Collet-Sabé, 2017) who acknowledge their responsibilities toward the national economic prospects (Dean, 2010). As such prospects are coated with collective interests in conjunction with ethics (Foucault, 2011), and equipped with the function of pastoral guidance (Foucault, 2010), this national mission is inscribed within their self-knowledge via their souls (Rose, 1989). In this way, the strategy of care of self can direct their subjectivities and consequent behaviours (Foucault, 2005) because self is the proxy emulating domination in the guise of voluntarism (Foucault, 2011). Schooling is thereby able to install the conduct of conduct (Dean, 2010) or the self of self (Ball, 2016) into their self-consciousness. These theoretical lenses illustrate how people comply with the instructions of neoliberal governmentality when their subjectivities are successfully changed into a docile form, producing normalized minds that strongly support the existing social structure (Foucault, 1979). These correlations thus project a principle that governing technologies in contemporary society have shifted from government to governance (Foucault, 2010; Lingard, Martino & Rezai-Rashti, 2013) operating like panopticism (Foucault, 1979) but in an introspective form, leading people to auto-regulate by constantly looking at their own behaviours.

In a regime of neoliberal governmentality, the state is able to conduct a strategy of ‘non-interventionary intervention’ (Ball, 1998), ‘steering-at-a-distance’ (Thompson & Cook, 2014), or ‘governing at a global distance’ (Robertson, 2012) through human capital discourse that enshrines teaching quality within the discourse of international competitiveness. This discourse thus instructs teachers to see themselves as responsible for this national mission and demonstrate accountability by actively advancing their pedagogical knowledge and skills (Chiang & Trezise, 2021). In this sense, the shift from the status of responsible subjects to self-improvers is mediated by professional development. This transformation further activates their commitment to teaching efficiency, through which they are no longer seen as burdens on society but as subscribers (Säfström, 2005; Dean, 2010). More importantly, all these psychological syntheses are evoked by performativity, which leads teachers to subject themselves to the sphere of social rewards or sanctions, which are distributed on the basis of demonstrated teaching efficiency (Ball, 2003; Chiang, Thurston & Lee, 2020; Heffernan, 2018).

2. Theoretical concepts

2.1. Governmentality

Governmentality consists in techniques and procedures for directing human behavior: in the ‘government of children, government of souls and consciences, government of a household, of a state, or of oneself’ (Foucault 1997, p.82). The history of governmentality, Foucault (1991, p.120) argued, was an ‘ensemble formed by the

institutions, procedures, analyses and reflections, the calculations and tactics, that allow the exercise of this very specific albeit complex form of power.’ Over time, the preeminence of governmentality resulted in the ‘formation of whole series of specific governmental apparatuses’ and specific forms of ‘savoirs’, know-how and knowledge, such that the subjects of the state are ‘governmentalized’ (Foucault, 1997): how government is formulated, how it problematizes, and the techniques it uses to govern the population.

Foucault conceived of governmentality as a diffused and decentralised productive power through which power relations emerge in three forms: sovereign power which exercises authority over subjects through laws, for example; disciplinary power which regulates the ordering of people in schools or the professions; and government, a form of power concerned with the capacities and relations between people as resources to be developed and optimised, through the maximisation of human capital. Governmentality as a power relation can also be formulated as ‘conduct’, a power in which a diverse field of opportunities shapes, guides and affects the conduct of people in myriad ways and through myriad institutions. Governmentality encompasses the ‘conduct of oneself’ wherein the obligation to self-governance is a guiding force, along with leading people by varying degrees of coercion (Foucault, 1982). According to Lemke (2000, pp.2-3), governmentality picks out the relation between the government of the state (politics) and government of the self (morality), the construction of the subject (genealogy of the subject) with the formation of the state (genealogy of the state). Governmentality is the ‘conduct of conduct’, ‘the art of government’ that employs a range of technologies to govern its subjects, including techniques that promote autonomy, accountability, and self-realisation in a bid to create the enterprising person who is engaged in optimal human capital development (Gewirtz, 2008).

Governmentality refers to a way of thinking about government as the ‘right manner of disposing things’ in pursuit of a ‘whole series of specific finalities’ to be achieved through ‘multiform tactics’ (Foucault 1991, p.95), such as government by numbers (Ozga, 2008). Numbers, Ball (2015, p.299) writes, are also ‘fundamental to the constitution of the modern school in the form of the test or examination – a technology of classification, division and exclusion.’ The aim of governmentality is to do things better and to find better ways of living (Dean, 2010, p.33). Improvement requires techniques (datafication, performativity, accountability metrics) to bring about desired ways of living or bring improved states into being (Rose 1999, p.51). Combined, rationalised thought and technique comprise the ensemble of ‘institutions, procedures, analyses and reflections, the calculations and tactics’ through which governmental interventions are devised, and conduct conducted (Foucault 1991, p.102). Analysis of governmentality and its techniques and regimes expose how education policy

discourses and practices become internalised and embedded in the self to become a technique of the self.

2.2. Self and neoliberal-responsible subjects

Techniques of self are what we do to ourselves rather than to others, and how we govern ourselves. Foucault (2000) referred to these techniques as the ethic of care of self. The self (the subject) is constructed through practices in specific ways at specific times, which are historically variant (the modern neoliberal subject). Ethics as government of the self is ‘the kind of relationship you ought to have with yourself, rapport à soi, ... which determines how the individual is supposed to constitute himself as a moral subject of his own actions’ (Foucault, 2000, p.263). Foucault (1985, p.251) took ethics to be an ‘elaboration of a form of relation to self that enables an individual to fashion himself into a subject of ethical conduct’ (1985, p.251). The ethical technology of the care of the self corresponds to another technology, that of self-knowledge (Kelly, 2013, p.518). The technique entails both taking care of oneself and the injunction to know oneself.

Governmentality, wherein power is connected to, and manifests in, the subject, ‘makes it possible to bring out the freedom of the subject and its relationship to others – which constitutes the very stuff of ethics’ (Foucault in Rabinow, 1997, p.300). The ambition of the modern paradigmatic regime, neoliberalism is that individuals be entrepreneurs and conduct themselves as if their lives were an enterprise. It is a condition of neoliberal freedom that enterprising subjects be free and to conduct themselves responsibly in terms of realising their human capital and learning opportunities. Freedom as ‘choice, autonomy, self-responsibility, and the obligation to maximise one’s life as a kind of enterprise’ (Rose, O’Malley & Valverde, 2009, p.11), is a key strategy of advanced liberal governments (Rose 1992), a strategy that is evident in education discourses. Governmentality involves guiding principles according to which individuals are supposed to fashion themselves. Neoliberal subjects are exhorted to ‘invest in ourselves, work on ourselves, and improve ourselves – drive up our numbers, our performance, our outputs’ (Ball, 2015, p. 299).

Neo-liberalism, according to Rose and Miller (1992), is a mentality of government. The free citizen subject is engineered to become an ‘entrepreneur of himself’ (Foucault, 2008, p.226), to maximise their capital to become what they wish to be. Freedom obtains with a sense of duty to self-fulfilment and choice. Neoliberalism, further, instills a process of self-regulation such that the individual becomes a responsible subject who is on a quest for continual self-improvement. This is the ‘individualisation of responsibility for life outcomes’ (Spohrer, Stahl & Bowers-Brown, 2018, p.329) - individuals are expected to train and retrain in a series of continuous professional

development and to be responsible for performing at a minimum adequately, though teaching excellence is the goal.

2.3. Performance management and performativity

A key policy technology of the neoliberal educational policy reforms, performativity, is defined by Ball (2003, p.216) as a ‘technology... a mode of regulation that employs judgements, comparisons and displays as a means of incentive, control, attrition and change based on rewards and sanctions (both material and symbolic).’ The ‘performance’ of individual subjects or organisations (schools) act as ‘measures of productivity or output’ (Ball, 2003, p.216). The technology of performativity reduces complex social processes to simple numerical categories or judgements. School effectiveness and quality are measured by student performance on high-stakes standardised testing (Ball, 2015), the effects of policy governance by numbers and the ‘terror of organisational management by the logic of numbers’ (Singh, 2015, p.375). The ‘mechanics of performativity’ has thus created new means of invisible social control through data generating monitoring systems including ‘the appraisal meeting, the annual review, report writing, the regular publication of results and promotion applications, inspections and peer reviews’ (Ball 2005, p.220. See also Lingard & Sellar, 2013; Novoa & Yariv-Mashal 2014). The ‘management of performance’ to meet the demands of external requirements (school inspectors, OECD), produces what Ball (2003, p.222) describes as ‘spectacle, or game-playing, or cynical compliance’, what might be regarded as an “enacted fantasy” (Butler 1990, p.173, cited in Ball, 2003, p.222), which is there simply to be seen and judged – a fabrication.’

As troubling (as unethical) as the necessary deceit of fabrication, is that the goal of performance is ‘no longer truth, but performativity’, or the ‘best possible put/output equation’ (Lyotard, 1979, p. 46). Performativity of performance management has become a form of social evaluation, a quest for efficiency, displacing discipline to become a formation of power and knowledge (McKenzie, 2001), which can result in the isolation and atomisation of the subject (Rose, 1989; Ball, 2003). Performance is now the basis of teacher reviews and evaluations, the measurement of a school’s success in examinations, and the form of assessment in student testing/examination regimes. McKenzie (2001) describes performance as ‘an emergent stratum of power knowledge’ (p.18), a multilayered and dynamic site spanning ‘human labour and leisure activities and the behaviours of all industrially and electronically produced technologies’ (p.12).

Neoliberal discourses in the guise of performativity have produced new kinds of teacher subjects with new kinds of mentalities that are aligned with the demands of governmentality (Ball, 2003; Cochran-Smith, Furlong, Cochran-Smith et al. 2009, Holloway & Brass, 2018). Regimes of accountability and performance management

mean that teaching ‘can be made legible, calculable, measurable, evaluate-able, and comparable’ (Holloway & Brass, 2018, p.363). Accountability and performance regimes are exercised at a distance because teachers’ and schools’ mentalities are governed by the necessity to performatively execute their roles in accordance with these regimes – the conduct of conduct, the art of governance, the techniques of governmentality. These regimes provide the metrics by which teachers can continually assess themselves and each other against performance benchmarks and quality indicators to know how to be ‘good’ teachers. ‘Tyranny by numbers’, as Ball (2015) observed, is now linked to the terrors of performativity, including performance related pay.

2.4. Teaching quality and self-improvement

In the regime of neoliberal governmentality, in which population becomes its subjects and objects (Foucault, 2009), teachers are the targeted subjects. This is evident in the case of the PISA programme through which the OECD is able to export the knowledge of educational enterprise to the international community through its calculable indexes, which constitute people’s seeing and acting on educational contributions to the national future. Therefore, teachers are defined as manageable subjects through the discourse of hope/fear (Popkewitz, 2022). This situation commands teachers to make a crucial contribution to a linear relationship between teaching quality, human capital, international competitiveness and national development (Chiang, 2011, 2013; Rizvi & Lingard, 2006; Robertson, 2012; Tsatsaroni & Evans, 2014). Unfortunately, teachers have also been singled as a core source of social risk, often due to disappointing educational results being attributed to poor teaching quality (Thompson & Cook, 2014). In order to eliminate such risks, teachers need to be transformed into responsible subjects who strive to improve their professional knowledge and skills through professional development (Chiang & Trezise, 2021). Professional development promises them a path for enacting the role of self-improvers, through which they can rid themselves of the social stigma associated with student failure, and be honored for their social contribution (Säfström, 2005; Dean, 2010), which takes the form of good quality teaching in this study.

The teaching-quality-reward system implemented through performance management policy was introduced to ensure teachers’ commitment to teaching efficiency. This policy carries out the mechanisms of performativity, channeling social rewards, such as dignity, excellence, honor and pride, toward so-called excellent teachers, who can prove their productivity (Ball, 2003; Chiang, Thurston & Lee, 2020; Heffernan, 2018), through demonstration of enhanced teaching efficiency, which is achieved through constant updating of pedagogical knowledge and skills (Ball, 2006;

Holloway & Brass, 2018). As teachers are often strongly motivated to attain these social rewards, they tend to accept the ability ranking established by this policy, so that performativity moulds them into governable subjects (Orphan, Gildersleeve & Mills, 2018), or neoliberal subjects who willingly subscribe to the implementation of performance management (Garver, 2020), although pockets of resistance (Ball & Olmedo, 2013) or refusal (Maguire, Braun & Ball, 2018) can be found among teachers. At any rate, they have been tempted to enter into the kingdom of performativity, in which they dedicate themselves to demonstrating their teaching efficiency in order to win positive social approbation. These correlations indicate that performance management, through its function of making teachers look at themselves and monitor their colleagues simultaneously (Andersson & Fejes, 2005; Gewirtz, 2008), can be characterized as a technique of panoptic performativity (Perryman, 2006) because it tells teachers how to think and act (Popkewitz, 1994).

Self-improvement is a technology by which the neoliberal subject must continue to improve her skills, knowledge and performance, and maximise human capital in the process. Self-improvement ties learning to human capital development (Singh, 2015). Learning performance is now benchmarked at the level of the region, district, school, classroom and teacher in countries such as England, Australia and the USA, in order to track the ‘competitive potential of human capital’ (Singh, 2015, p.364). In critiquing such discourses, Gewirtz (2008) sought to examine how the aspirational aspects of the learning society and self-improvement have transmuted to a pervasive and totalising obligation to learn. Two dominant dimensions are ‘learning to live’ and ‘living to learn’ (Gewirtz, 2008, p.417). The first dimension represents ‘all the ways in which learning can be instrumentalised as preparation for life. This includes education for economic and civic participation at all levels of the education system’ (p.417). The second dimension, ‘living to live’, is explained as the ways in which ‘all aspects of life are increasingly translated into domains of learning’. It includes ‘every aspect of the life course...and every aspect of the self, including emotional and spiritual as well as cognitive and moral components’ (p.417).

The negative outcomes of these approaches to, and assumptions about, learning are that they take on a ‘totalising role in governing or regulating all of life experiences’ (Singh, 2015, p.365). They also have a regulatory role in that individuals are expected to be available for self-improvement throughout their working lives, and to develop impactful generic, transferrable skills. The logic of the market regulates the selection, organisation, and evaluation of self-improvement through learning (Singh, 2015, p.366). These regulations include research skills such as engagement, influence and impact. A totalising pedagogy (Ball, 2009) characterised by governance mechanisms of self-reliance and enterprise, responsibility, in addition to ‘autonomisation’ and

‘responsibilisation’ (Rose, 1989, p.xxiii), have emerged from discourses which insist on the never-ending engagement in self-improvement and personal effectiveness.

3. Research design

3.1. Research questions and hypotheses

While the concept of neoliberal governmentality involves the interplay of responsible subjects, self-improvement, professional development, the teaching-quality-reward system, performativity, and teaching efficiency, its realization may be regulated by social contexts in which social cultures often shape people’s self-knowledge leading to certain patterns of behaviour. Therefore, it can be inferred that the exercise of neoliberal governmentality will be affected by social culture. This assumption is consistent with the argument proposed by comparative education scholars (Hall, 1973; Holmes, 1981; Schriewer, 2003), which addresses the profound influence of social culture on pedagogical practices. It also corresponds to the notion of “n”eoliberalism, referring to multiple forms of neoliberalism that result from diversified local needs, rather than “N”eoliberalism in the sense of a universal principle applicable across all types of social contexts (Ong, 2007). Because credentialism has long been prevalent in Chinese societies (Chiang, 1996), parents, particularly from high SES families, are highly proactive in terms of mobilizing their resources to shield the privileged position of their children (Chiang, Toh, Zhang, et.al., 2022). In this case, in the regime of neoliberal performativity that governs the teaching-quality-reward system, teachers’ attention to and care of parental attitudes may intercede the relations from responsible subjects to self-improvers who seek to improve their teaching efficiency through professional development. On the basis of this possible formula, ten research questions can be identified as follows:

- What is the relation between care of parental attitudes and teaching efficiency?
- What is the relation between care of parental attitudes and the teaching-quality-reward system?
- What is the relation between care of parental attitudes and responsible subjects?
- What is the relation between care of parental attitudes and self-improvement through professional development?
- What is the relation between teaching efficiency and the teaching-quality-reward system?
- What is the relation between teaching efficiency and responsible subjects?
- What is the relation between teaching efficiency and self-improvement through professional development?
- What is the relation between the teaching-quality-reward system and responsible subjects?

- What is the relation between the teaching-quality-reward system and self-improvement through professional development?
- What is relation between responsible subjects and self-improvement through professional development?

In order to answer the above ten questions, matching hypotheses are proposed below:

- ◆ H1: Care of parental attitudes (CPA) significantly contributes to teaching efficiency (TE).
- ◆ H2: Care of parental attitudes (CPA) significantly predicates the teaching-quality-reward system (TQR).
- ◆ H3: Care of parental attitudes (CPA) significantly governs responsible subjects (RS).
- ◆ H4: Care of parental attitudes (CPA) significantly regulates self-improvement through professional development (SIPD).
- ◆ H5: Teaching efficiency (TE) significantly influences the teaching-quality-reward system (TQR).
- ◆ H6: Teaching efficiency (TE) significantly constitutes responsible subjects (RS).
- ◆ H7: Teaching efficiency (TE) significantly administers self-improvement through professional development (SIPD).
- ◆ H8: The teaching-quality-reward system (TQR) significantly forms responsible subjects (RS).
- ◆ H9: The teaching-quality-reward system (TQR) significantly induces self-improvement through professional development (SIPD).
- ◆ H10: Responsible subjects (RS) significantly endorse self-improvement through professional development (SIPD).

According to the relationships noted above, the interplay of the ten hypotheses is characterized, as demonstrated in Fig. 1.

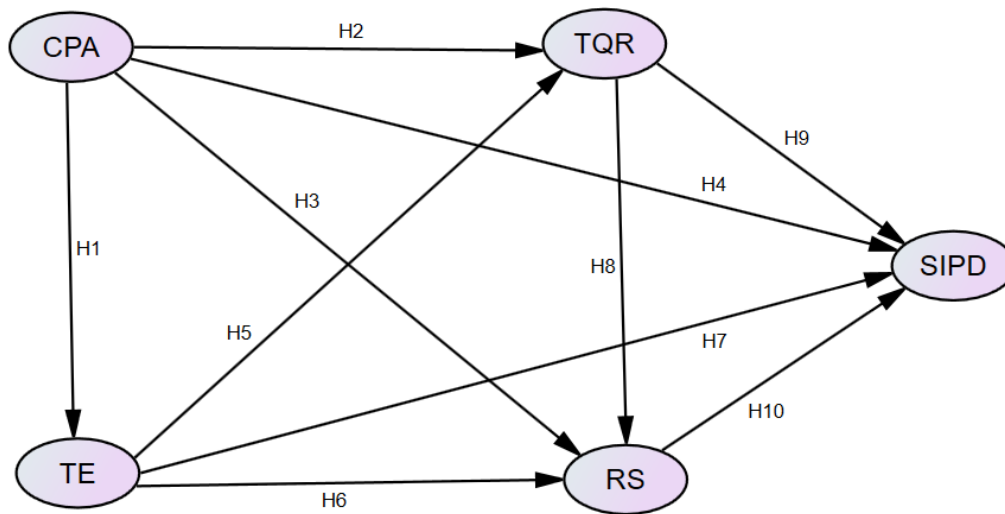


Fig. 1: A logic model of ten hypotheses associated with teachers' perceptions of performativity

As this study sets out to investigate teachers' perceptions of the relationship between performativity and their subjectivities, which are mainly driven through social culture, the technique of Structural Equational Modelling (SEM) is required, by which a theoretical path can be revealed to illuminate relationships embodied within human behaviours when the researchers have enough knowledge to produce hypotheses (which we have in Figure 1 and the associated hypotheses listed above) (Bollen & Noble, 2011).

3.2. The questionnaire

Because this research adopted a quantitative approach, a survey using a questionnaire was employed for data collection. Part A of a survey collected data on the demographics of the sample. Part B, asking respondents to indicate their responses on a five-point Likert scale from strongly agree to strongly disagree, was constructed to test the ten hypotheses noted previously as associated with five theoretical themes reconceptualized from the literature review: teaching efficiency (TE), the teaching-quality-reward system (TQR), self-improvement through professional development (SIPD), care of parental attitudes (CPA), and responsible subjects (RS). The final questionnaire, finalized through a pilot study with a sample of 160 teachers selected from four junior high schools, had 29 questions comprised of five sub-categories consistent with the five theoretical themes above.

3.3. Sampling and subjects

The total junior high school teacher population in Zhejiang province is 133,100 teachers (Zhejiang Provincial Education Department, 2020). Fifty-five junior high schools were selected from five administrative zones through random stratified sampling and the

survey was sent to n=3,800 teachers. This survey had a return rate of 87.18% and 3,313 of all the teachers returned valid and usable survey data. This valid subject number is much larger than the minimum sample size of 484 calculated to provide enough power to detect effects using Structural Equational Modelling (SEM) with an anticipated effect size of 0.3 at 95% power and $p < 0.05$, as suggested by Cohen (1988). The data were analyzed in SPSS for Windows Release 22 (IBM, Armonk, USA) to produce basic descriptive statistics and perform confirmatory factor analysis (CFA), and in AMOS 22.0 to conduct the SEM analysis.

3.4. Descriptive statistics

Questionnaire part a: Demographics of sample

Table 1 details the demographic information of the 3,313 subjects, revealing the number of female participants (n=2,228; 67.25%) was slightly over twice that of males (n=1,085; 32.75%). In terms of qualification, bachelor degrees were most strongly represented (n=3,011; 90.88%), followed by master's degree or above (n=242; 7.30%) and then diploma or below (n=60; 1.81%). Regarding years of teaching, the proportion of respondents with over 25 years' experience (n=784; 23.66%) was much larger than the other groups, which ranged from 13.52% (6-10 years; n=448) to 16.57% (1-5 years; n=549). The distribution of geographic locations was most concentrated in urban/city areas, respondents from which comprised nearly half of our subjects (n=1,630; 49.20%), compared with those from town/county areas (n=1,091; 32.93%) and rural/village regions (n=592; 17.87%). While two categories of class sizes, 31-45 (n=1,966; 59.34%) and 46-50 (n=999; 30.15), were predominant, constituting nearly ninety percent of our subjects (n=2,965; 89.50%), the remaining two groups of 1-30 (n=173, 5.22%) and over 51 (n=175, 5.28%) almost equally shared the rest. There are four scales of teaching seniority in China's ranking system, ranging from the lowest, Level 3 through Level 2, Level 1, and finally the highest Elite level. The highest percentage of our respondents was at Level 1 (n=1,437; 43.37%), followed by Level 2 (n=902; 27.23%), Elite (n=839; 25.32%), and Level 3 (n=135, 4.07%).

Table 1 Demographic information on sampled teachers (n=3,313)

Items	Category	Frequency	Percentage
Gender	Male	1,085	32.75%
	Female	2,228	67.25%
Qualification	Diploma or below	60	1.82%
	Bachelor	3,011	90.88%
	Master or above	242	7.30%
	1-5 years	549	16.57%

Years of teaching	6-10 years	448	13.52%
	11-15 years	524	15.82%
	16-20 years	522	15.76%
	21-25 years	486	14.67%
	Over 25 years	784	23.66%
School location	Urban/city	1,630	49.20%
	Town/county	1,091	32.93%
	Rural/village	592	17.87%
Class size	1-30	173	5.22%
	31-45	1,966	59.34%
	46-50	999	30.16%
	Over 51	175	5.28%
Teacher ranking	Level 3	135	4.07%
	Level 2	902	27.23%
	Level 1	1,437	43.38%
	Elite	839	25.32%

Questionnaire part b:

Part b of the questionnaire contained 29 questions designed to evaluate the respondents' recognition of the relation between Chinese social culture and performativity using five sub-scales as noted above (five theoretical themes reconceptualized from the literature review: teaching efficiency (TE), the teaching-quality-reward system (TQR), self-improvement through professional development (SIPD), care of parental attitudes (CPA), and responsible subjects (RS)). Descriptive statistics for the 3,313 responses to each question are reported in Table 2. It can be observed that their means and SD ranged from 1.34 (item 1) to 2.00 (item 11) and from 0.53 (item 1) to 0.83 (item 11) respectively.

Table 2 Descriptive statistics of measurements (n=3,313)

Items	Min	Max	Mean	SD
1. I have designed teaching programs in advance.	1	5	1.34	0.53
2. I have employed flexible teaching strategies.	1	5	1.53	0.63
3. I have created opportunities for students to raise questions.	1	5	1.57	0.65
4. I have actively sought to discover students' learning difficulties.	1	5	1.50	0.60
5. I understand individual students' needs.	1	5	1.63	0.66
6. I have provided students with opportunities for peer-interaction.	1	5	1.58	0.65
7. I can identify students' learning difficulties in class.	1	5	1.62	0.63
8. I have contacted parents regularly.	1	5	1.77	0.76
9. My communication with parents has gone smoothly.	1	5	1.68	0.70

10. I understand parents' ideas about their children's education.	1	5	1.83	0.76
11. I am very familiar with my students' family situations.	1	5	2.00	0.83
12. My colleagues and I work together to review teaching affairs.	1	5	1.56	0.64
13. My professional competences are consistent with the school development plan.	1	5	1.55	0.61
14. I have improved my teaching knowledge through professional development programs.	1	5	1.53	0.60
15. I have improved the effectiveness of my teaching through professional development programs.	1	5	1.53	0.59
16. I have actively participated in professional development activities in and outside of school.	1	5	1.51	0.60
17. I often engage in reflection on my teaching.	1	5	1.57	0.61
18. I often learn from the strengths of excellent teachers.	1	5	1.54	0.59
19. My school often rewards excellent teachers.	1	5	1.80	0.79
20. The results of my teaching affect my colleagues' evaluation of me.	1	5	1.80	0.74
21. The results of my teaching affect my status in the school.	1	5	1.86	0.79
22. The results of my teaching affect my teaching identity.	1	5	1.76	0.72
23. My teaching effectiveness helps me win the trust of school administrators.	1	5	1.76	0.72
24. My commitment to teaching is very strong.	1	5	1.54	0.61
25. My teaching autonomy enhances my professional identity.	1	5	1.59	0.63
26. I exercise teaching autonomy in a responsible way.	1	5	1.55	0.61
27. I actively develop my students' independent learning ability.	1	5	1.54	0.59
28. I actively develop my students' creativity.	1	5	1.60	0.64
29. I have a responsibility to strengthen my students' international competitiveness.	1	5	1.62	0.67

3.5. The results of confirmatory factor analysis

The results of confirmatory factor analysis (CFA) are listed in Table 3. The mode of five factors was extracted in loading value > 0.55 , by which four items (1, 17, 18, and 28) were discarded, and explained 75.56% of the total variance with KMO 0.970 ($p < 0.0001$) and a Cronbach's alpha of 0.973, denoting excellent quality in this model.

- ◆ Factor 1 points to the issue of teaching efficiency (TE);
- ◆ Factor 2 designates the teaching-quality-reward system (TQR);
- ◆ Factor 3 is associated with the idea of self-improvement through professional development (SIPD);
- ◆ Factor 4 is correlated to the aspect of care of parental attitudes (CPA); and
- ◆ Factor 5 highlights the sense of responsible subjects (RS).

Table 3 The results of confirmatory factor analysis of the measurements

		Factor Loadings		
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	1	2	3	4	5
<i>Factor 1: teaching efficiency (TE)</i>					
I have actively sought to discover students' learning difficulties. (item 4: discover difficulty)		.772			
I understand individual students' needs. (item 5: students' need)		.759			
I have provided students with opportunities for peer-interaction. (item 6: peer-interaction)		.748			
I have created opportunities for students to raise questions. (item 3: raising questions)		.742			
I have employed flexible teaching strategies. (item 2: teaching strategies)		.723			
I can identify students' learning difficulties in class. (item 7: identify difficulty)		.597			
<i>Factor 2: the teaching-quality-reward system (TQR)</i>					
The results of my teaching affect my status in the school. (item 21: status)		.867			
The results of my teaching affect my teaching identity. (item 22: identity)		.800			
My teaching effectiveness helps me win the trust of school administrators. (item 23: trust)		.783			
The results of my teaching affect my colleagues' evaluation of me. (item 20: care of others)		.762			
My school often rewards excellent teachers. (item 19: reward)		.632			
<i>Factor 3: self-improvement through professional development (SIPD)</i>					
I have improved my teaching knowledge through professional development programs. (item 14: knowledge development)		.766			
I have improved the effectiveness of my teaching through professional development programs. (item 15: effectiveness development)		.745			
I have actively participated in professional development activities in and outside of school. (item 16: development activity)		.701			
My professional competences are consistent with the school development plan. (item 13: competence and school plan)		.699			
My colleagues and I work together to review teaching affairs. (item 12: review teaching affairs)		.596			
<i>Factor 4: care of parental attitudes (CPA)</i>					
I have contacted parents regularly. (item 8: contact parents)				.817	

I am very familiar with my students' family situations. (item 11: family situation)					.788
I understand parents' ideas about their children's education. (item 10: parent's ideas)					.761
My communication with parents has gone smoothly. (item 9: communication with parents)					.750
<i>Factor 5: responsible subjects (RS)</i>					
My commitment to teaching is very strong. (item 24: commitment)					.727
I exercise teaching autonomy in a responsible way. (item 26: responsible attitude)					.723
My teaching autonomy enhances my professional identity. (item 25: autonomy)					.683
I actively develop my students' independent learning ability. (item 27: students' independence)					.643
I have a responsibility to strengthen my students' international competitiveness. (item 29: students' competitiveness)					.574
Eigenvalue	4.751	4.333	3.768	3.623	3.414
Variable explained (percentage)	19.003	17.332	15.071	14.493	13.657
Cumulative variance explained (percentage)	19.003	36.335	51.406	65.899	75.556
Cronbach's alpha	.933	.915	.951	.920	.941
			.970		
Kaiser-Meyer-Olkin Measure of Sample Adequacy			.973		
Bartlett's Test of Sphericity significance			p<.000		

Extraction Method: Principal Component Analysis.

Rotation Method: Varimax with Kaiser Normalization.

3.6. Structural Equation Modeling (SEM)

After CFA has been conducted, it is necessary to check the estimates of goodness-of-fit measurement prior to the performance of SEM, which was employed to examine the ten hypotheses listed previously. Table 4 displays its results, indicating a good fit between the model and the observed data.

Table 4 Fit indices, acceptable values and values of the model

Model Fit Index	Criterion	Model Fit of Research Model
ML ²	smaller is better	3286.137
DF (Degree of Freedom)	bigger is better	265
Normed Chi-sqr (χ^2/DF)	$1 < \chi^2/DF < 3$	12.401

GFI	>0.9	0.925
AGFI	>0.9	0.908
IFI	>0.9	0.965
TLI (NNFI)	>0.9	0.960
CFI	>0.9	0.965
RMSEA	<0.08	0.059
SRMR	<0.08	0.0416

4. Findings

Table 5 presents the results of the ten hypotheses. Except for Hypothesis 9 ($\beta=-0.008$, $p=0.597$), all of the other nine hypotheses are strongly confirmed. The outcomes of Hypotheses 1, 2, 3 and 4, demonstrate that CPA (care of parental attitudes) functions as the most reliable predictor of the other four factors – TE (teaching efficiency) ($\beta=0.746$, $p<0.001$), TQR (the teaching-quality-reward system) ($\beta=0.348$, $p<0.001$), RS (responsible subjects) ($\beta=0.088$, $p<0.001$) and SIPD (self-improvement through professional development) ($\beta=0.036$, $p<0.05$). TE (teaching efficiency) acts as the second most crucial contributor to the remaining three factors, including TQR (the teaching-quality-reward system) ($\beta=0.343$, $p<0.001$), RS (responsible subjects) ($\beta=0.432$, $p<0.001$) and SIPD (self-improvement through professional development) ($\beta=0.363$, $p<0.001$). As Hypotheses 8 and 10 are accepted, TQR (the teaching-quality-reward system) and RS (responsible subjects) serve as important indicators regulating RS (responsible subjects) ($\beta=0.454$, $p<0.001$) and SIPD (self-improvement through professional development) ($\beta=0.540$, $p <0.001$) respectively.

Table 5 Standardized Regression Weights

Research Hypothesis	β	S.E.	z-value	P	Hypo.	Std.	result
CPA→TE	0.539	0.014	39.693	***	H1	0.746	supported
CPA→TQR	0.289	0.021	13.777	***	H2	0.348	supported
CPA→RS	0.07	0.014	4.861	***	H3	0.088	supported
CPA→SIPD	0.028	0.013	2.184	*	H4	0.036	supported
TE→TQR	0.395	0.029	13.626	***	H5	0.343	supported
TE→RS	0.476	0.021	22.654	***	H6	0.432	supported
TE→SIPD	0.388	0.021	18.183	***	H7	0.363	supported
TQR→RS	0.435	0.016	27.22	***	H8	0.454	supported
TQR→SIPD	-0.008	0.016	-0.528	0.597	H9	-0.009	rejected
RS→SIPD	0.524	0.022	24.349	***	H10	0.540	supported

Note: * indicates $p <0.05$, ** indicates $p <0.01$, *** indicates $p <0.001$

On the basis of the integrated relations of the five factors and the theoretical correlations of the ten hypotheses, we can identify the best theoretical path from Fig. 2. More specifically, SIPD (self-improvement through professional development) is heavily governed by RS (responsible subjects) ($\beta=0.54$, $p<0.001$). While RS (responsible subjects) is almost equally attributed to TQR (the teaching-quality-reward system) ($\beta=0.45$, $p<0.01$) and TE (teaching efficiency) ($\beta=0.43$, $p<0.001$), TE significantly contributes to TQR ($\beta=0.34$, $p<0.001$) and CPA (care of parental attitudes) strongly commands TE ($\beta=0.75$, $p<0.001$). All these correlations articulate an excellent theoretical model, termed Model 1, starting from CPA (care of parental attitudes) to TE (teaching efficiency), TQR (the teaching-quality-reward system), then RS (responsible subjects), and finally SIPD (self-improvement through professional development). This model denotes that care of parental attitudes (CPA) serves as an infrastructure, initiating the interactions of the remaining four factors, in which the teaching-quality-reward system (TQR) and responsible subjects (RS) strongly mediate the relationship between teaching efficiency (TE) and professional development (SIPD).

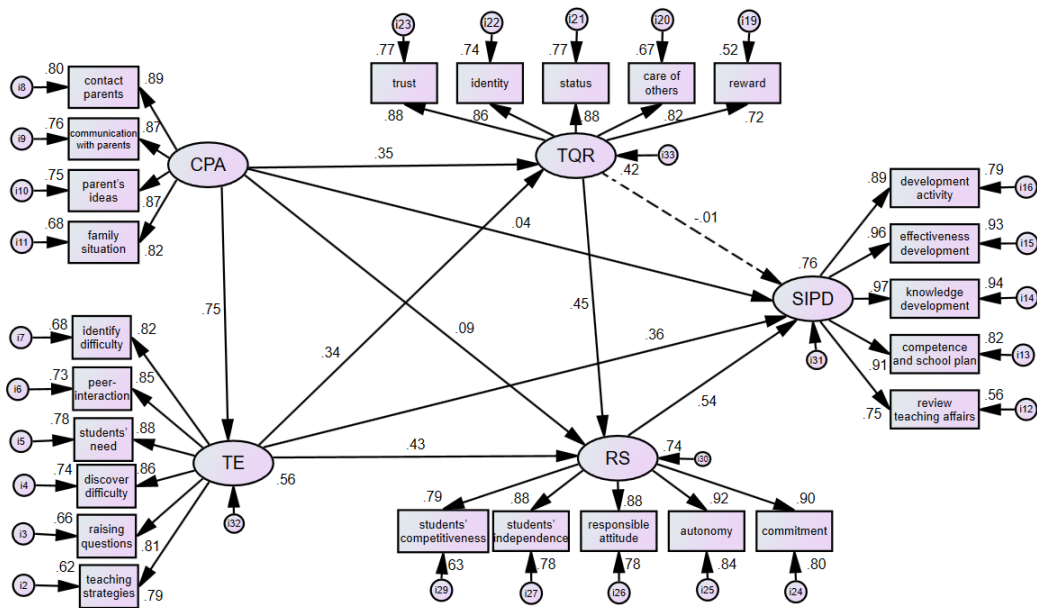


Fig. 2 Standardized estimates of SEM

As CPA (care of parental attitudes), RS (responsible subjects) and TQS (the teaching-quality-reward system) play a key role in this model, their features are closely related to the combination of subjectivity and performativity (SP), which are two core elements in steering the realization of neoliberal governmentality. The subjectivity-performativity association can be assumed as a latent construct that articulates the inner

correlations between CPA (care of parental attitudes), RS (responsible subjects) and TQS (the teaching-quality-reward system). This assumption can be verified through a two-level model of SEM, which assists researchers to uncover a construct projecting the internal relations between factors (Berbegal-Mirabent, Mas-Machuca & Marimon, 2018; Cheng, 2011) or representing the similarity of factors (Assunção, Lin, Sit, et.al., 2020). Based on this attempt, six hypotheses are constructed below and their interactions are specified in Fig. 3:

- ◆ H1: CPA (care of parental attitudes) significantly correlates to SP (the subjectivity-performativity association);
- ◆ H2: RS (responsible subjects) meaningfully relates to SP (the subjectivity-performativity association);
- ◆ H3: TQR (the teaching-quality-reward system) is strongly attributed to SP (the subjectivity-performativity association);
- ◆ H4: SP (the subjectivity-performativity association) heavily governs TE (teaching efficiency);
- ◆ H5: SP (the subjectivity-performativity association) prominently contributes to SIPD (self-improvement through professional development);
- ◆ H6: TE (teaching efficiency) significantly affects SIPD (self-improvement through professional development).

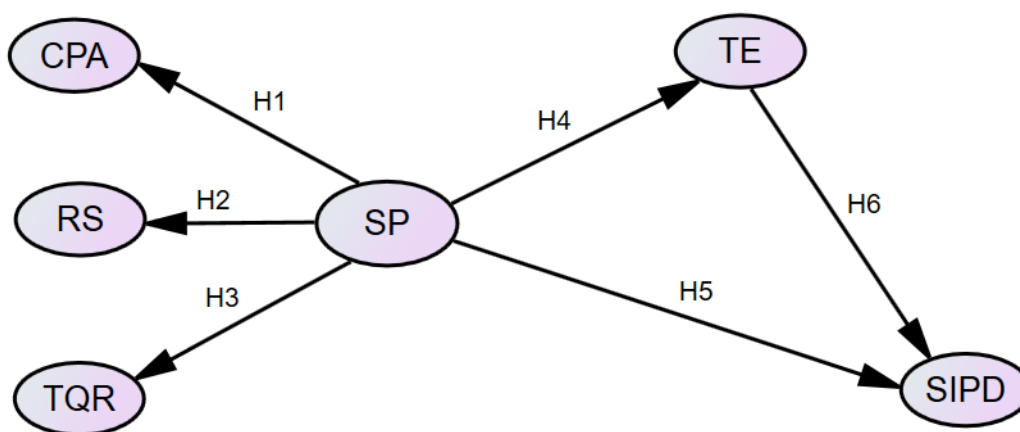


Fig. 3 A logic model of the relations between the self-performativity association and the five factors

All the indexes displayed in Table 6 robustly document the validity of the subjectivity-performativity association, as evidenced by the CR (composite reliability) result of 0.870, which is much higher than the criteria of 0.6 proposed by Fornell and Larcker (1981) and of 0.7 suggested by Hair, Tatham, et.al. (1998). Furthermore, AVE (average variance extracted) is 0.693, which is much higher than 0.5 argued by Fornell and Larcker (1981). In addition, the Cronbach Alpha coefficient of the subjectivity-

performativity association is 0.948, documenting its excellent internal consistency. All the hard evidence explicitly points out that the subjectivity-performativity association serves as an excellent construct sufficiently expressing CPA (care of parental attitudes), RS (responsible subjects), and TQR (the teaching-quality-reward system).

Table 6 Convergent validity of the construct

constructs	index	Unstd.	S.E.	Unstd./S.D..	P	Std.	SMC	CR	AVE
SP	CPA	0.520	0.012	41.802	***	0.762	0.581	0.870	0.693
	RS	0.514	0.009	59.296	***	0.944	0.891		
	TQR	0.442	0.012	38.152	***	0.780	0.608		

Table 7 Fit indices, acceptable values and values of the model

Model Fit Index	Criterion	Model Fit of Research Model
ML ²	smaller is better	3707.783
DF (Degree of Freedom)	bigger is better	269
Normed Chi-sqr (χ^2/DF)	$1 < \chi^2/DF < 3$	13.769
GFI	>0.9	0.915
AGFI	>0.9	0.897
IFI	>0.9	0.965
TLI (NNFI)	>0.9	0.960
CFI	>0.9	0.965
RMSEA	<0.08	0.062
SRMR	<0.08	0.0486

The results recorded in Table 7 further validate the goodness of fit between the model and the observed data. The results of the six hypotheses are delineated in Table 8, exhibiting that they are strongly supported. In Fig. 4, it can be seen that CPA (care of parental attitudes) ($\beta=0.76$, $p<0.001$), RS (responsible subjects) ($\beta=0.94$, $p<0.001$) and TQR (the teaching-quality-reward system) ($\beta=0.78$, $p<0.001$) all explicitly converge upon SP (the subjectivity-performativity association). This scenario illuminates that SP (the subjectivity-performativity association) serves as an underlying constitutive signifying the integrated relation of these three factors. From this, it can be inferred that the practice of neoliberal governmentality is heavily governed by the combination of self and performativity, at least in this study.

Furthermore, the relations between these three factors and the remaining two factors are greatly mediated by this association, as manifested in its convincing coefficients with TE (teaching efficiency) ($\beta=0.83$, $p<0.001$) and SIPD (self-

improvement through professional development) ($\beta=0.68$, $p<0.001$). Relatively, TE (teaching efficiency) moderately conduces to SIPD (self-improvement through professional development) as shown by their correlation coefficient ($\beta=0.23$, $p<0.001$). The contribution of SP (the subjectivity-performativity association) to TE (teaching efficiency) ($\beta=0.83$, $p<0.001$) is much higher than that to SIPD (self-improvement through professional development) ($\beta=0.68$, $p<0.001$). Furthermore, TE (teaching efficiency) meaningfully connects with SIPD (self-improvement through professional development) ($\beta=0.23$, $p<0.001$). These correlations suggest the best theoretical path, termed Model 2, in which SP (the subjectivity-performativity association) performs as the most powerful determinant governing TE (teaching efficiency), which gears SIPD (self-improvement through professional development).

Table 8 Standardized Regression Weights

Research Hypothesis	β	S.E.	z-value	P	Hypo.	Std.	result
CPA \leftarrow SP	0.520	0.012	41.802	***	H1	0.762	supported
RS \leftarrow SP	0.514	0.009	59.296	***	H2	0.944	supported
TQR \leftarrow SP	0.442	0.012	38.152	***	H3	0.78	supported
SP \rightarrow TE	0.412	0.009	44.107	***	H4	0.833	supported
SP \rightarrow SIPD	0.361	0.013	27.246	***	H5	0.685	supported
TE \rightarrow SIPD	0.246	0.025	9.899	***	H6	0.231	supported

Note: * indicates $p < 0.05$, ** indicates $p < 0.01$, *** indicates $p < 0.001$

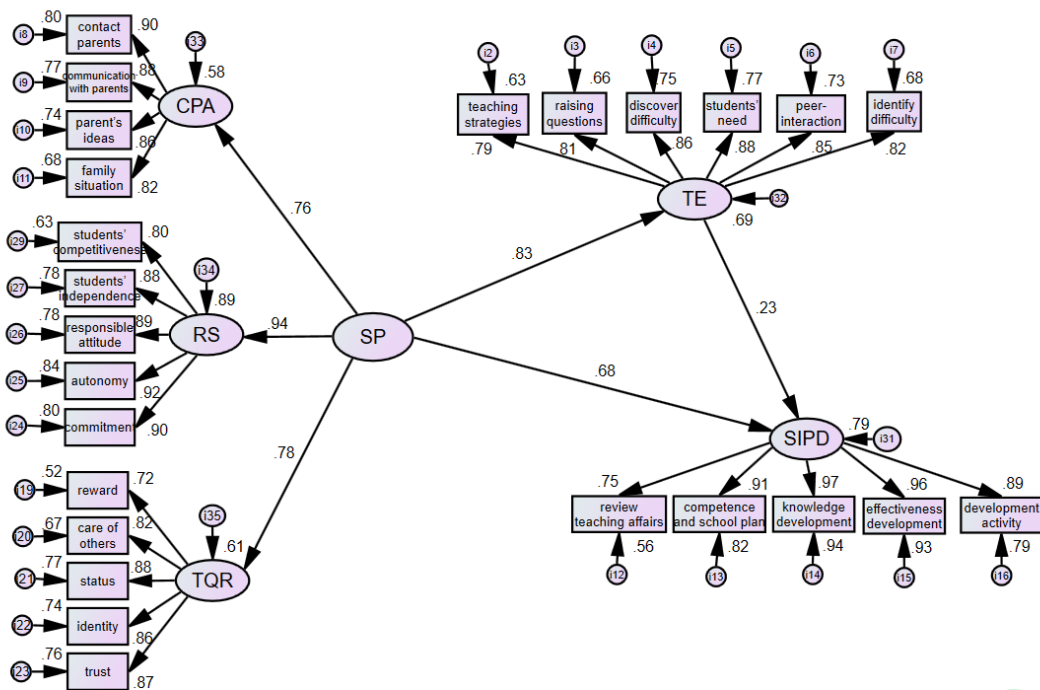


Fig. 4 Standardized estimates of SEM of the self-performativity association and the five factors

5. Discussion

Two best models of a SEM analysis have been successively tried out. In Model 1, CPA (care of parental attitudes) works as the fundamental determinant animating the interactions of the remaining four factors, in which the teaching-quality-reward system (TQR) and responsible subjects (RS) meaningfully coordinate the relationship between teaching efficiency (TE) and self-improvement through professional development (SIPD). Within this theoretical path, the predominant correlation between care of parental attitudes (CPA) and teaching efficiency (TE) is ascribable to the Chinese context, in which the examination-based culture visibly intensifies parental concern with children's examination results, boosting the status of the 3Rs. In response to this pervasive parental pressure, teachers often have no choice but to intensify their teaching efficiency. This culturally-led phenomenon thus substantiates the notion of "n"eoliberalism, proposed by Ong (2007), which envisages multiple forms of neoliberalism resulting from diversified local needs. Since this nonlinear relationship resonates with those theories emphasizing the influence of social context on any imported ideas (Luhmann, 1995; Schriewer, 2003), the realization of neoliberal governmentality (Dean, 2010; Foucault, 2010) is now calibrated by local cultures to some extent. Unlike enactment based on teachers' agency (Ball, 2003; Ball, Maguire & Braun, 2012; Maguire, Braun & Ball, 2015; Singh, 2015), this modification primarily arises from social culture. In addition, when this cultural approach configures teacher subjectivities, as evidenced by the significant affiliation between responsible subjects (RS) and self-improvement through professional development (SIPD), their interplay apparently engineers self-regulation and then commitment via beliefs/values. The combination of beliefs and commitments accounts for how self manages self-monitoring, as argued by Foucault (2005). More concretely, because responsible teachers need to advance their own pedagogical knowledge and skills through professional development, their self-improvement is thence impelled by beliefs and commitments to some degree. These correlations explain how professional development can be employed as a governing technique over neoliberal subjects (Andersson & Fejes, 2005; Ball, 2009; Dean, 2010; Säfström, 2005). Notwithstanding, the linkage between teaching efficiency (TE) and self-improvement through professional development (SIPD) is significantly mediated by responsible subjects (RS) and the teaching-quality-reward system (TQR), which represent inside drive and outside incentive respectively. These affiliations entail that self-discipline/improvement is guided by beliefs and rewards simultaneously. Even though these findings sufficiently explicate why subjectivities, in Foucault's terminology (Foucault, 2005;

Ball & Olmedo, 2013), are not only fabricated by performativity (Ball, 2006; Hefferman, 2018) but also by beliefs/commitments (Chiang, Thurston & Lee, 2022), they further unmask their interactive relations. In this regard, teaching efficiency (TE) serves as a crucial intermediary as it brings in social returns manifested in the teaching-quality-reward system (TQR), which deliberately manufactures responsible subjects (RS). Accordingly, the integration of the above elements, including beliefs, subjectivities, teaching efficiency, and performativity, delineates how responsible or even enterprising subjects are evoked (Dean, 2010; Foucault, 2005, 2010). Since performativity partly formats governmentalized agents, this finding is consistent with such concepts as self-regulators (Ball, 2003; Collet-Sabé 2017), self-improvers (Dean, 2010), self-governors (Ball, Maguire & Braun 2012), and neoliberal subjects (Garver 2020).

The best theoretical path of Model 2 indicates that the subjectivity-performativity association (SP) performs as the primary constituent governing TE (teaching efficiency) that commands SIPD (self-improvement through professional development). In comparison to teaching efficiency, the subjectivity-performativity formula plays a more crucial role in sculpting teachers' attitudes towards self-improvement, even if these two ingredients fashion an ensemble entirely dominating such attitudes in this study. Because the subjectivity-performativity association (SP) works as an excellent construct, representing the synthesis of inside drives (e.g., care of parental attitudes, and responsible subjects) and outside incentives (e.g., the teaching-quality-reward system) in point, such attitudes are manufactured by this composite. It can be inferred that this composite functions as a kind of beacon, which guides teachers to coordinate beliefs, commitments, and plans into a single entity that aids them to foresee the possible consequences of their actions of self-improvement. These mental procedures reveal how pastoral guidance (Foucault, 2010) is exerted in our respondents' minds. These processes also illustrate why their commitment to teaching ethics can generate care of self (Foucault, 2005; Olmedo, Bailey & Ball 2013), which transforms teachers into enterprising subjects (Ball, 2016), who are devoted to optimizing their productivity (Ball, 2003), incarnated within teaching efficiency through self-improvement in this study.

These anecdotes certify an argument that governing techniques in contemporary society have shifted from government to governance (Foucault, 2010; Lingard, Martino & Rezai-Rashti, 2013). However, our cogent evidence indicates that its operation doesn't retain the form of panopticism (Foucault, 1979) but in its introspective way lead people to become auto-regulators who constantly look at their own behaviours. Because care of parental attitudes and the teaching-quality-reward system represent outside pressure and incentives respectively, these two aspects can be classified as external

stimuli. In contrast, responsible subjects are steered by beliefs and commitments, which operate internally. When outside incentives have been successfully internalized into beliefs that bolster commitments, this internalization substantially turns outside inducements into values. This value-oriented approach suggests that as their intentions are impelled by beliefs and commitments, the integration of values, beliefs, and commitments invokes spiritual inspirations that form self-governors. Consequently, such inspirations change panoptic performativity (Perryman, 2006) into introspective panopticism, characterizing the inner world of self-regulators who reflexively monitor themselves constantly. Since introspective panopticism is generated by free will but manipulated by power enshrined within performativity, it serves as testimony depicting how savior (the desire to know) is constructed (Foucault, 2013). More importantly, introspective panopticism, inscribed within teachers' subjectivities through performativity, serves as a script describing how docile bodies with normalized minds are hatched through schooling (Foucault, 1979), which is the discourse of self-improvement in this study.

6. Conclusion

One of the crucial contributions of Model 1 to the theories of neoliberal governmentality is to unveil the interplay between the five factors of this study, showing that care of parental attitudes functions as the initiator, activating the interactions between the remaining four factors, in which the strong tie between responsible teachers and self-improvement is attributed to performativity regulated by teaching efficiency. More importantly, as the tight affiliation between care of parental attitudes and teaching efficiency arises from social contexts, this situation intimates that the practice of neoliberal governmentality will be modified by social cultures to some extent. The best theoretical path of Model 2 makes another contribution to the perspectives of neoliberal governmentality due to its remarkable discovery that self-improvement is mainly engineered by teaching efficiency in conjunction with the subjectivity-performativity association. These correlations indicate that in order to enhance teaching efficiency, teachers are dedicated to engaging in professional development. This dedication is heavily impelled by their subjectivities that accommodate external inducements, such as parental attitudes and performativity, and internal values through internalization.

In a sense, such subjectivities generate the mechanism of introspective panopticism carrying performativity, which constructs auto-improvers who reflexively monitor their systematical engagements in self-improvement constantly. Greatly differing from the panopticon that is delivered through outside surveillance, the framework of introspective panopticism is centred on voluntarism normalized through a value-oriented commitment. Teachers' self-commitment thus signifies their

subjectivities which integrate outside factors and inside beliefs into a single entity. In this case, professional development discourse can be viewed as the core ingredient of introspective panopticism enshrined within teachers' subjectivities because it establishes a value-based orientation that turns a global eye of performativity into a normalized soul, through which governmentalized teachers are manufactured. These associations articulate a principle that regarding professional development, introspective panopticism serves as a recipe for performing governance in the regime of neoliberal governmentality.

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