教師角色轉化模式：以教師施為當作核心的歷程

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摘　要

　　教師角色轉化模式不曾進行實證性研究，以致重要構念間的因果關係與重要假設均未獲驗證。本文經由實證研究建立了一個涉及五個重要構念的因果模型，並以結構方程式考驗六個尚未獲得證實的重要假設。依文獻探討提出含有五個潛在變項、六個假設的初始模式，並以臺灣小學教師為樣本進行調查研究，再採結構方程式對851位有效樣本進行模式的驗證。研究發現如下：

　　1.教師角色轉化模式共包含「教師角色變遷」、「不合理要求」、「轉化施為」、「轉化資源」、「轉化結果」等五項潛在變項。

　　2.教師角色轉化模式以教師的「轉化施為」為樞紐。

　　3.教師角色轉化乃教師施為與外在社會結構間作用的歷程。

　　4.教師面對角色變遷到轉化結果的產生，有三條可能路徑。

　　本研究結論顯示，教師面對角色變遷，教師的施為具有關鍵性地位。教師轉化資源愈高，轉化施為愈多，進而提升轉化結果。因此，本研究提出「增進施為的展現」、「提供反省與探究的學習環境」、「學習如何尋找轉化資源」以及對未來研究之建議。

關鍵詞：教師、角色、轉化、小學

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The Model for the Transformation of Teacher Role: A Process with the Teacher Agency as a Pivot

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Abstract

The model for the transformation of teacher role, which is important to empower teachers to face their role change, is still unclear because the empirical study on this topic has not been explored. This study constructs a model contains five important components and tests six important hypotheses that were not confirmed in the literature. Based on the literature research, an initial model that contains five latent variables and six hypotheses was proposed. This model was subsequently confirmed using the method of structure equation modeling to analyze the survey data obtained from 851 subjects in elementary schools. The results of this study clearly indicate that five components are contained in the model, and the component of teachers' Agencies is the pivot of the model. There are three possible routes from Change of teacher role to the Outcomes of transformation. Furthermore, the transformation of teacher role is a process in which teachers' agencies interact with the social structure, i.e. Change of teacher role and Outcomes of transformation. Four suggestions are also recommended.

Keywords: teacher, role, transformation, elementary school

Introduction

"The transformation of teacher role" is a complex phrase that combined "teacher role" with "transformation". Three separate concepts are designated for the "teacher role", i.e. role as behavior, role as social position and role as expectation (Biddle, 1997: 697). The "transformation" refers to an act, process, or instance of transforming or being transformed (Gove & the Merriam-Webster editorial staff, 1971: 2724). Accordingly, "the transformation of teacher role" could be defined as a process that teachers change their roles in behavior, social position, or expectation in order to struggle to act as a teacher. Thus, "the transformation of teacher role" can bring about "the practice from ideal teacher role to actual teacher role", "the change of teacher role/social position in socialization" and "the reconstruction of society by teachers' role change."

To understand the transformation process of teacher role is important for teachers to empower themselves to face their role change. Teachers play a critical role in the school education, and a variety of persons become teachers' role partners, e.g. students, students' parents, school managers, and administrators of education. A set of role expectations is formed from these role partners of teachers (Marshall, 1998: 570). Some of these role expectations are consistent and independent of the change of times; for example, the teacher's character of patience is continuously expected (Guo, 2006a: 49). However, some expectations are extremely changed when the times is changing; for example, different generations have distinct perspectives on the teachers' professional ethic (Guo, 2006a: 49). Facing the role change expected from role partners, teachers should understand how to transform their role in order to achieve the excellent performance of teacher role.

It has been proposed that the transformation of teacher role is a process in which teachers' agency interacts with social structure (Giroux, 1983: 120). McLaren (2003: 193) also suggested that the teacher both creates and is created by the social universe of which he/she is a part. For the role transformation being occurred, teachers should interact with social structure, such as reflecting their roles in the society and dialoguing with the members in the society. After reflecting and dialoguing, teachers may accept, resist or destruct the norms and disciplines existed in schools or societies. It seems that social structure may make changes in teachers' role; on the other hand, teachers' agency may also bring about the change of social structure.

The effect of teachers' agency on social structures is important for social change. Giroux (1985: 376, 1988: 126) presented an image of "teachers as transformative intellectuals" in which teachers must take a responsible role in shaping the purposes and conditions of schooling. Goodman (1988: 143) also described that the image of "teachers as transformative intellectuals" emphasizes on the potential for human agency in substantively altering material and ideological oppression. The challenge of teachers is to recognize and attempt to transform those undemocratic and oppressive features of hegemonic control that often structure everyday classroom existence in ways not readily apparent (McLaren, 2003: 204). It seems important for social change that teachers must take active responsibility to consider the existence of the hegemonic control in what they teach, how they teach, and what goals they strive.

Literature review

The concept of "teachers as transformative intellectuals" was partially

verified by some empirical studies in which the characteristics of transformative teachers and the outcomes of transformation were explored. Lester (1993) found that teachers who become "transformative intellectuals" have highly skilled masters of critical modes in thought and analysis. Kanpol (1989) found that the teacher resistance activities lead to counter-hegemonic possibilities according to a naturalistic case study in which four middle school teachers' resistance activities on institutional and cultural politics were examined. Gallagher (2000) indicated that a teacher who agrees "teachers as transformative intellectuals" could use the bottom-up teaching skill in educating students to learn the literacy of composition and grammar. By the analysis of data from two large-scale Australia curriculum reform projects for Health and Physical Education (HPE), Kirk and MacDonald (2001) found that teachers who participated in the projects were inevitably involved in transforming and reconstructing the innovative idea embedded in HPE materials. By the method of case study, Stiler (2005: 72) illustrated that the portraits of participants' thinking and action possessed concerning the needs of minority students, reflective resistance, alternative curricula, student-centered instruction, and positive peer relationships. In Taiwan, Guo (2002) has reviewed and analyzed the dissertations relating to the topic concerning the transformation of teacher role. It indicated that the amount of the studies on this topic is gradually increased. Most of these studies used elementary school teachers as the subjects, and qualitative approach was usually adopted as the researching method. The gradually increase of studies on this topic probably resulted from the emphasis of the empowerment of teachers during the educational reform in Taiwan. The previous studies mentioned above focused on the examination of the characteristics of transformative teachers and outcomes of the transformation.

There were some studies in literature that focused on the teachers' role

transformation or change. Based on the literature study, Lipman-Blumen (1973: 105) developed a theoretical framework of role change in which the crisis in a social system provides the most favorable condition for rapid and widespread role transformation. Lipman-Blumen (1973: 128) emphasized that further confirmation by systematical empirical testing is necessary for this theoretical framework. Furthermore, Turner (1990: 107) formulated a model for role change based on the literature review. This model revealed that the impetus might come from "culture values change," "social structural change" and "demographic and technological change." For the impetus resulting in successful negotiation of a new role pattern, it depends upon several conditioning factors, such as "costs of alternatives," "structural autonomy," "incumbent unity and mobilization," "mobilized client demand," "cultural credibility" and "institutional support." As described by Turner (1990: 87), the model for role change is a tentative model, also awaits further confirmation by systematical empirical testing. In Taiwan, Guo (2001) proposed a model of the teachers' role transformation based on the review and analysis of the literatures relating to role theory. The meanings, conditions, and process of transformation were involved in this model. However, further empirical confirmation should be made because this model was proposed based on literature review. Based on the previous studies mentioned above, a systematical empirical study is necessary to explore the transformation of the teacher role. Furthermore, it seems that the "crises" or "impetus," proposed by Lipman-Blumen and Turner respectively, is an important component resulting in the transformation/change of teachers' role.

The current social changes under globalization may really be viewed as the "impetus" in the transformation/change of teachers' role. Nowadays, the neo-liberal marketization is usually used to solve the educational problem, thus the techniques of accountability, measurement, and management are used to

evaluate the professional in education (Apple, 2000: xi; McLaren & Farahmandpur, 2005; Smyth, 2006; Smyth, Dow, Hattam, Reid, & Shacklock, 2000). As a result, the reconstruction of education has brought about radical changes in teacher role (Woods & Jeffrey, 2002). Teachers' work intensified when social organizational demands increased. Moreover, teachers' work has become more routinized and subjected to accountability. Thus, teachers feel less valued in community (Seddon, 1997: 230).

Based on the literature studies mentioned above, five components that are Change of Teacher Role, Unreasonable Requests, Resources of Transformation, Agencies of Transformation, and Outcomes of Transformation for the transformation of teacher role are summarized in this study (Table 1). The literatures cited to construct the five components are listed in Table 1, while the meaning of each component is denoted in Table 2. The Change of Teacher Role is a component resulting from social change and is illustrated by several researchers (Apple, 2000; Giroux, 1983; Guo, 2001; Lipman-Blumen, 1973; McLaren, 2003; McLaren & Farahmandpur, 2005; Sedden, 1997; Smyth, 2006; Smyth et al., 2000; Turner, 1990; Woods & Jeffrey, 2002). The importance of the Unreasonable Requests, which represents the awareness of teachers themselves for the necessity of role change, in the role transformation is emphasized by Apple (2000), Giroux (1983), Goodman (1998), Guo (2001), Kanpol (1989), McLaren (2003), McLaren and Farahmandpur (2005), Sedden (1997), Smyth (2006), Smyth et al. (2000) and Turner (1990). The Agencies of Transformation performed by teachers is the main component of the role transformation, and its importance in such a transformation was frequently emphasized by many researchers (Gallagher, 2000; Giroux, 1983; Goodman, 1998; Guo, 2001; Kanpol, 1989; Kirk & MacDonald, 2001; Lester, 1993; Lipman-Blumen, 1973; McLaren, 2003; Stiler, 2005; Turner, 1990). Researchers indicated that the

Resources of Transformation, which can be used by teachers to transform their roles, should be considered in the study of the transformation of teacher roles (Guo, 2001, 2002; Lipman-Blumen, 1973; Turner, 1990). Researchers also concerned the Outcomes of Transformation, which may be the acceptance, resistance or reconstruction of the teacher role, because it is the result of a transformation, and may initiate another cycle of the role transforming (Gallagher, 2000; Giroux, 1983; Goodman, 1998; Guo, 2001, 2002; Kanpol, 1989; Kirk & MacDonald, 2001; Lipman-Blumen, 1973; McLaren, 2003; Turner, 1990; Woods & Jeffrey, 2002).

Table 1　The literatures cited to construct the five components of the theoretical framework in this study

Literatures	Components [a]				
	Change of Teacher Role [b]	Unreasonable Requests [b]	Agencies of Transformation [b]	Resources of Transformation [b]	Outcomes of Transform [b]
Apple (2000)	V	V			
Gallagher (2000)			V		V
Giroux (1983)	V	V	V		V
Goodman (1998)		V	V		V
Guo (2001)	V	V	V	V	V
Guo (2002)				V	V
Kanpol (1989)		V	V		V
Kirk & MacDonald (2001)			V		V
Lester (1993)			V		
Lipman-Blumen (1973)	V		V	V	V
McLaren (2003)	V	V	V		V

Table 1　The literatures cited to construct the five components of the theoretical framework in this study (Cont.)

Literatures	Components [a]				
	Change of Teacher Role [b]	Unreason-able Requests [b]	Agencies of Transfor-mation [b]	Resources of Transfor-mation [b]	Outcomes of Transform [b]
McLaren & Farahmandpur (2005)	V	V			
Sedden (1997)	V	V			
Smyth et al. (2000)	V	V			
Smyth (2006)	V	V			
Stiler (2005)			V		
Turner (1990)	V	V	V	V	V
Woods & Jeffrey (2002)	V				V

[a] The symbol "V" indicates that the component is emphasized by the literature.

[b] The meaning of each component is denoted in Table 2.

Table 2　The meaning of the terms used in this study

Terms *	meaning
Change of Teacher Role	The teacher role, such as instruction, teacher characteristics, professional performance, or communication, expected by teachers and their role partners is changed.
Unreasonable Requests	The requests from the role expectation, e.g. community service, is unreasonable according to the awareness and criticism responded by teachers.
Agencies of Transformation	It means the actions, which may be naming, appraising, or optimizing, made by teachers in order to transform the unreasonable teacher role.
Resources of Transformation	The resources are the factors or conditions from the dimensions of society, or school used by teachers to transform their roles.
Outcomes of Transformation	The outcomes, e.g. role enactment, empowerment, or socialization, are the results of the transformation of teacher roles.

* The dimensions of these terms are denoted in Table 4.

The relationship among these five components is postulated in this study according to the literature searching (Fig. 1). Fig. 1 depicts the theoretical framework of the teachers' role transformation in which includes the five components and their possible relationships. The transformation may be initiated when teachers confront the impetus of role change (Apple, 2000; Guo, 2001; McLaren & Farahmandpur, 2005; Smyth, 2006; Smyth et al., 2000; Woods & Jeffrey, 2002). Encountering the change of teacher role, teachers who are transformative intellectuals would perform their agency of transformation and have better outcomes of transformation (Giroux, 1983). Several researches indicated that teachers who have the agency of transformation could enact as an ideal teacher role, socialize as a teacher, or possess the empowerment to achieve the reconstruction of society (Gallagher, 2000; Giroux, 1983; Kanpol, 1989; Kirk & MacDonald, 2001; Lester, 1993; McLaren, 2003; Seddon, 1997; Stiler, 2005). Thus, it is postulated in this study that "Change of Teacher Role" has positively effect on "Agencies of Transformation" (Hypothesis 1), and "Agencies of Transformation" positively affect "Outcomes of Transformation" (Hypothesis 2).

Teachers having more resources of transformation may carry out the agency of transformation according to the literature review. Several researchers indicated that teachers usually perform their daily works, such as curriculum change, according to their resource to complete the transformation (Gallagher, 2000; Guo, 2001, 2002; Kirk & MacDonald, 2001; Stiler, 2005). These studies imply that having more resource to complete the transformation, teachers would perform the agency of transformation. Furthermore, the agency of transformation could also be postulated as a positive affection by the resources of transformation according to the implication of the research of Guo (2000). Based on the copying model proposed by Guo (2000), resource positively affects
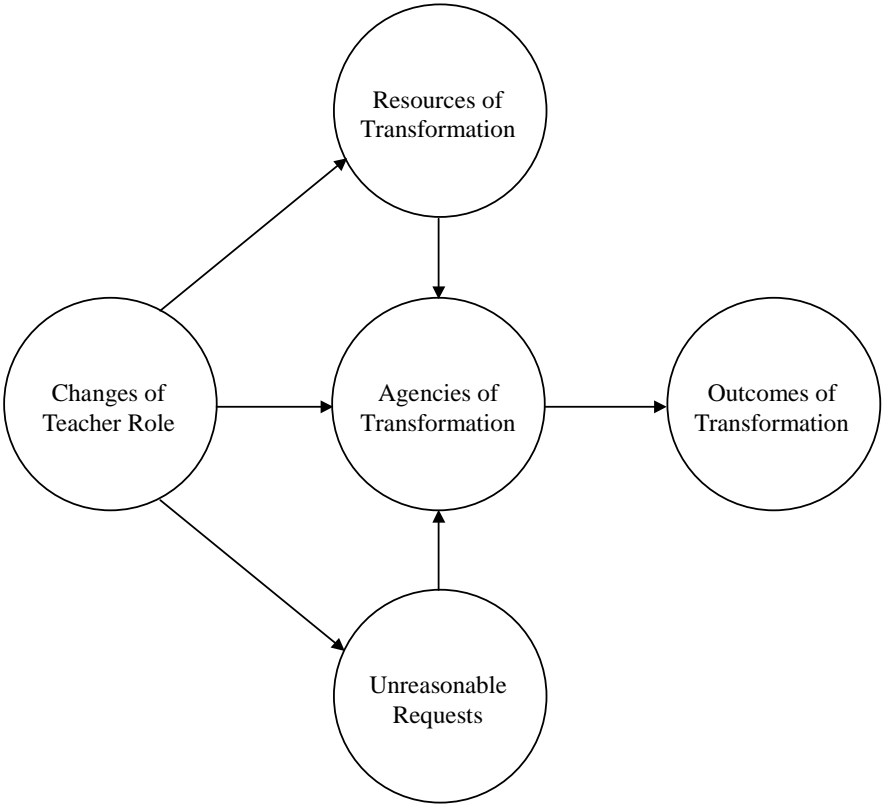
Figure 1　Heuristic representation of the theoretical framework; the meaning of each latent variable is denoted in Table 2.

the copying behavior. In fact, the agency of transformation, which represents the behavior of a transformation, is resembled to the copying behavior. It should be noticed that the resources of transformation are the mediators between Change of teacher role and Agency of transformation. For teachers who are transformative intellectuals, they would look for resources to perform their agency when they encounter the change of teacher role. The more change of teacher role would initiate the more resources searched by these teachers. Thus,

the change of teacher role would have positively effect on the resources of transformation for these teachers. It is postulated that "Change of teacher role" positively affect the "Resources of Transformation" (Hypothesis 3), and "Resources of Transformation" has a positive effect on "Agencies of Transformation" (Hypothesis 4).

According to the literature review, teachers who perceive their role being changed would not aware the requests to them being unreasonable. It is indicated that teachers have the behaviors of repliers, e.g. reactors, rather than designers of classroom activities (Dreeben, 1973: 463), probably because they have to respond the changing situation in classroom immediately. The repliers, rather than transformative intellectuals, are accustomed to accept the requests from their role partners. Thus, a negative effect of "Change of Teacher Role" on "Unreasonable Requests" is postulated in this study (Hypothesis 5).

According to the teacher culture described by Lortie (2002), teachers may barely carry out the agency of transformation when they perceive the requests being unreasonable. Three characteristics of teacher cultures proposed by Lortie (2002: 210-212) are conservatism, individualism, and presentism, which represent a preference of doing things as they have been done before, the hesitance and uneasiness to change something existed, and no collegial efforts being undertaken, respectively. With the sentiments of these cultures, teachers have no ambitiousness to transform the exited situation when they perceived the requests being unreasonable. In Taiwanese elementary schools, the research of Guo (2006b) indicated that teachers' performing to change their unreasonable role expectation is the weakest one among the five elements of transformative agencies, naming, appraising, directing, performing and optimizing. This empirical study (Guo, 2006b) also implies that the performance of teachers who perceived the requests being unreasonable may be insufficient to complete the

agency of transformation. Thus, a negative effect of "Unreasonable Requests" on "Agencies of Transformation" is postulated in this study (Hypothesis 6).

Purposes and hypotheses of this study

Owing to the rapidly changing of the society in Taiwan, the study for the transformation/change of Taiwanese teachers' role is an interesting one. The educational system in Taiwan was a closed and unidirectional one before 1990's. However, the reforms of education in Taiwan, which began from 1990's, resulted in an open and flexible educational system. Before 1990's, the government regulated the demand and supply of teachers, and almost every pre-service teacher could become qualified teachers. Now, the regulation of teachers' demand and supply is dominated by the mechanism of market. Moreover, the teachers were implementers of curriculum and the government developed the textbook used in school before 1990's. After 9-year curriculum reform, the teachers become the developers and implementers of curriculum now. They have to develop the school-based curriculum as well as the teaching material in school (Hsieh, Chou, Gai, Chang, & Kao, 1999; Ministry of Education, 2006). The trend of liberal competition and marketization in Taiwanese education reforms bring certain "impetus" on teachers. Under such impetus, it seems that the transformation of teacher role as well as the interaction between teachers' agencies and social structure may occur. Thus, the study for the transformation of Taiwanese teachers' role is necessary.

The purpose of this study is to propose and test empirically the model for the transformation of teacher role in primary school.

As described in the previous sections, this study summarizes the five components of the transformation of teacher role (Table 1), and proposes the

theoretical framework (Fig. 1) of this study based on literature researches. According to this theoretical framework, the hypotheses of this study are proposed as follows:

Hypothesis 1. There would be a positive effect of "Change of Teacher Role" on "Agencies of Transformation."

Hypothesis 2. There would be a positive effect of "Agencies of Transformation" on "Outcomes of Transformation."

Hypothesis 3. There would be a positive effect of "Change of Teacher Role" on "Resources of Transformation."

Hypothesis 4. There would be a positive effect of "Resources of Transformation" on "Agencies of Transformation."

Hypothesis 5. There would be a negative effect of "Change of Teacher Role" on "Unreasonable Requests."

Hypothesis 6. There would be a negative effect of "Unreasonable Requests" on "Agencies of Transformation."

Methods

The model constructed in this study followed three stages: developing the theoretical framework, testing the model, and modifying the model. The draft of instrument, which was designed according to the theoretical framework proposed, was revised based on the information of interviews, the comments of reviewers and the results of pretest. After the instrument was completed, the initial model was proposed and assessed its fitness according to the data obtained from survey in this study. By modifying the initial model, the final model was formed, and was subsequently confirmed by the assessment of its fitness according to the identical survey data.

Samples

The 53 participated elementary schools (2.06%) were sampled from 2,573 elementary schools in Taiwan by the method of stratified cluster random sampling based on the located districts of the schools. The 1,532 subjects, who were the teachers from the participated elementary schools, were surveyed using the "Inventory of the Perception for Teachers Role Transformation (IPTRT)" as an instrument. The 851 valid survey respondents were obtained (response rate: 55.55%). The demographics of the survey respondents in this study are similar to those of the corresponding population (Table 3).

Table 3　The demographics for survey respondents and the corresponding population in Taiwan

Demographics	Survey respondents	Population
Genders		
Male	29.7%	31.94%
Female	70.3%	68.06%
Districts		
Taipei municipality	7.57%	11.63%
Kaohsiung municipality	6.95%	5.92%
Northern district	36.37%	41.41%
Midland district	26.25%	25.66%
Southern district	32.05%	27.22%
Eastern district	5.33%	5.70%
Kinmen & Matsu	1.08%	0.44%
Scale of school		
Small (below 12 classes)	50.94%	49.24%
Middle (13-48 classes)	33.96%	35.95%
Large (over 49 classes)	15.09%	14.81%

Instruments

The inventory used in this study was "Inventory of the Perception for Teachers Role Transformation (IPTRT)" which was self-designed instrument developed by the following procedures. The draft of this inventory was designed based on the data from the interview of 12 primary school teachers and the theoretical framework as shown in Fig. 1. This draft was revised based on the comments of 8 reviewers. Then, a pretest in which 358 samples involved was performed in order to establish the validity and reliability of the final revision of the instrument (Table 4).

The final revision of the instrument is the measurement tool for the initial model of the teacher role transformation, as shown in Fig. 2. Each sub-inventory is used to measure the latent variable of the initial model in this study. Moreover, each dimension of a sub-inventory is used to measure the observed variable of the initial model.

The instrument contains 5 sub-inventories and is written as statements that are rated on the level of agreement with a 4-point, Likert-type scale. The dimensions, examples and item numbers of five sub-inventories are shown in Table 4. When the subjects responded to the sub-inventory of Change of teacher role, they were noted in the instrument that the past-age means the ages when the subjects were primary students. The test score interpretation of this inventory has very good validity and reliability according to the percentage of variance (>50%) and the Cronbach Alpha (>.80) of each sub-inventory as shown in Table 4.

Data analysis

The data in this study were statistically analyzed by two computer software

Table 4 The item number, percentage of variance and Cronbach Alpha for sub-inventories and dimensions of the "inventory of the perception for teachers role transformation"

Sub-inventories [a]	Dimensions [b]	Examples	I [c]	V [d] (%)	α [e]
Change of Teacher Role(C)			35	62.39	.8260
	C1 Instruction	Nowadays, various teaching strategies should be used in a teaching activity.	5	32.86	.8730
	C2 Ethics	In the past, the teachers were more impersonal.	6	10.02	.8292
	C3 Teacher characteristics	Nowadays, teachers need a good sense of humor.	6	6.30	.8998
	C4 Status and authority	Nowadays, the teachers have less authority.	6	5.43	8650
	C5 Professional performance	Nowadays, the teachers have more sense of professional autonomy.	6	4.26	.7927
	C6 Communication	Nowadays, the participation in the tasks of school management is more important for teachers.	5	3.52	.8625
Unreasonable Requests (U)			36	50.93	.9164
	U1 Remedial instruction	The teachers are asked to do the extra remedial instruction for students.	6	26.09	.8398
	U2 Right and obligation	The salary of teachers is too high and should be cut down.	7	7.50	.7160
	U3 Professional requests	The teacher should have the professional ability to analyze the current education policy.	6	4.99	.7160
	U4 Relationship among parents, teacher and student	The parents asked teachers to improve their students' academic achievement, although, the instructional reforms require the teachers to promote students' multiple-abilities.	6	4.41	.7957
	U5 Personal characteristics	The morality of a teacher should be strict.	6	4.11	.7473
	U6 Community service	The teachers are asked to participate in the tasks of school management.	5	3.83	.7656

Table 4　The item number, percentage of variance and Cronbach Alpha for sub-inventories and dimensions of the "inventory of the perception for teachers role transformation" (Cont.)

Sub-inventories [a]	Dimensions [b]	Examples	I [c]	V [d] (%)	α [e]
Resources of Transformation (R)			18	62.81	.8930
	R1 Personal resource	The teachers possess the ethics of caring.	6	36.02	.8770
	R2 School resource	The climate of school is comfortable.	6	13.83	.8760
	R3 Social resource	The financial support is enough.	6	12.97	.8670
Agencies of Transformation (A)			36	57.52	.9441
	A1 Appraising	Think before doing.	9	34.64	.8190
	A2 Performing	Draft the plain and the procedure.	6	7.45	.7964
	A3 Optimizing	Do not make the same mistake.	9	5.90	.8532
	A4 Naming	Think the meaning of the new requirement for teachers.	6	5.11	.8802
	A5 Directing	Do by the method suitable for the teachers themselves.	6	4.41	.8994
Outcomes of Transformation (O)			18	67.61	.9450
	O1 Role enactment	The teachers show better competence to perform the instruction.	6	53.09	.8190
	O2 Teacher empowerment	The teachers obtain more rights and interests (without violating the justice).	6	8.14	.8380
	O3 Teacher socialization	The teachers acknowledge the nature of education.	6	6.38	.8780

[a] Each sub-inventory becomes the latent variable in the initial model (Fig. 2, Table 6) of this study; the meaning of each term is denoted in Table 2.

[b] The dimensions of each sub-inventory become the observed variables in the initial model (Fig. 2, Table 5) of this study.

[c] I: Item number for each sub-inventory or dimension.

[d] V: Percentage of variance for each sub-inventory or dimension.

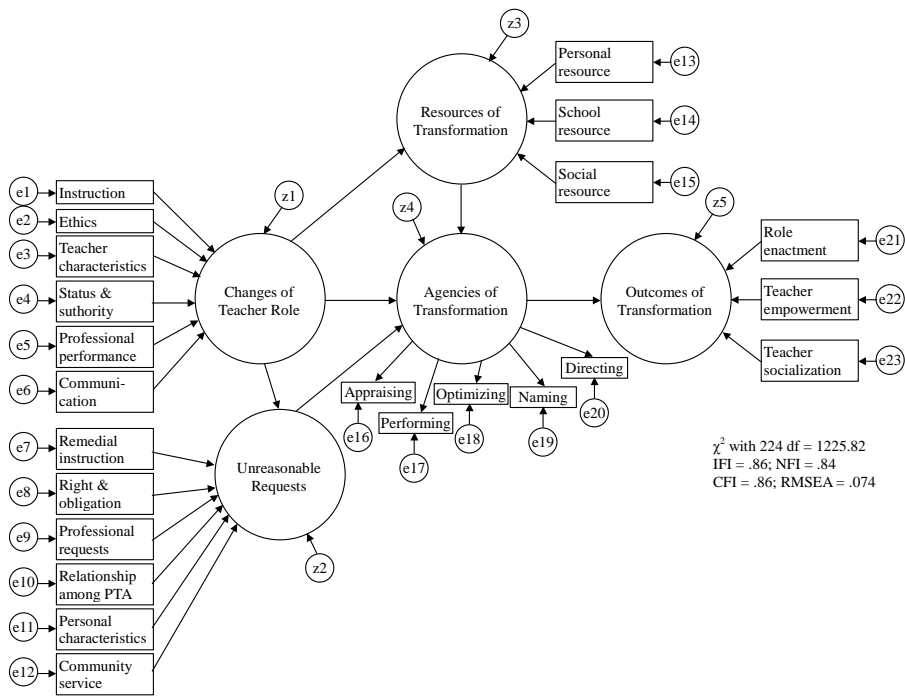[e] a: Cronbach α coefficients of each sub-inventory or dimension.

Figure 2   Heuristic representation of the initial model to be test; the meaning of each latent variable is denoted in Table 2.

packages, SPSS for Windows 12.0 and AMOS 5.0. In order to develop the inventory, the data from pretest were statistically analyzed by item analysis, factor analysis and internal consistency analysis using the SPSS for Windows 12.0 as the software. After survey using the IPTRT instrument, the data obtained were statistically analyzed to calculate the Means (M), Standard Deviation (SD), and the product-moment correlation for these observed variables (Table 5).

In order to evaluate the model fit, the data obtained from survey were assessed by the chi-squared ($\chi 2$) test, normed fit index (NFI), incremental fit index (IFI), comparative fit index (CFI) and root mean square error of

Table 5　The mean (M), standard deviation (SD), and product-moment correlation for the observed variables[a]

	C1	C2	C3	C4	C5	C6	U1	U2	U3	U4	U5	U6	R1	R2	R3	A1	A2	A3	A4	A5	O1	O2	O3
C1	1.00																						
C2	.08*	1.00																					
C3	.51**	.23**	1.00																				
C4	.41**	.16**	.45**	1.00																			
C5	.47**	.45**	.52**	.43**	1.00																		
C6	.53**	.26**	.59**	.52**	.67**	1.00																	
U1	-.36**	-.08**	-.31**	-.11**	-.28**	-.35**	1.00																
U2	.05	-.14**	-.01	.20**	-.02	-.01	.16**	1.000															
U3	-.18**	.01	-.12**	.05	-.15**	-.15**	.33**	.29**	1.00														
U4	-.21**	-.06	-.20**	-.04	-.19**	-.27**	.42**	.22**	.52**	1.00													
U5	-.21**	-.07*	-.19**	.06	-1.7**	-.22**	.42**	.26**	.49**	.57**	1.00												
U6	-.06	.01	-.05	.16**	-.02	-.07*	.22**	.33**	.43**	.42**	.47**	1.00											
R1	.22**	.04	.23**	.17**	.19**	.21**	-.32**	.01	-.24**	-.25**	-.28**	-.12**	1.000										
R2	.23**	.11**	.15**	.03	.18**	.22**	-.25**	-.17**	-.24**	-.22**	-.27**	-.16**	.40 **	1.00									
R3	.12**	.11**	.10**	-.02	.12**	.12**	-.19**	-.17**	-.26**	-.16**	-.19**	-.27**	.30**	.56**	1.00								
A1	.15**	.09**	.19**	.07*	.17**	.14**	-.26**	-.03	-.16**	-.19**	-.21**	-.08*	.40**	.25**	.22**	1.00							
A2	.22**	.04	.21**	.13**	.19*	.28**	-.28**	-.03	-.15**	-.21**	-.20**	-.09**	.28**	.26**	.16**	.60**	1.00						
A3	.07*	.04	.05	.04	.07*	.04	-.08*	.00	-.07*	-.05	-.02	-.01	.22**	.18**	.11**	.41**	.39**	1.00					
A4	.05	.19**	.06	-.05	.14**	.09**	-.14**	-.10**	-.21**	-.11**	-.11**	-.10**	.26**	.23**	.29**	.38**	.32**	.40**	1.00				
A5	.17**	.10**	.21**	.12**	.17**	.20**	-.25**	-.08**	-.15**	-.17**	-.19**	-.09**	.29**	.27**	.22**	.54**	.62**	.41**	.53**	1.00			
O1	.18**	.09**	.19**	.05	.15**	.12**	-.23**	-.04	-.13**	-.17**	-.19**	-.13**	.31**	.27**	.21**	.43**	.40**	.33**	.32**	.51**	1.00		
O2	.15**	.12**	.16**	-.01	.17**	.10**	-.17**	-.05	-.10**	-.09**	-.09**	-.05	.25**	.31**	.29**	.42**	.34**	.37**	.45**	.46**	.64**	1.00	
O3	.22**	.09**	.19**	.04	.19**	.18**	-.32**	-.17**	-.22**	-.22**	-.25**	-.14**	.31**	.31**	.25**	.46**	.43**	.33**	.34**	.50**	.64**	.56**	1.00
M	20.35	14.84	20.25	21.02	19.51	17.16	9.30	16.58	15.21	11.32	11.44	10.24	18.91	17.47	16.47	19.89	31.63	19.26	16.91	30.14	20.04	18.10	20.08
SD	2.87	4.82	3.35	2.89	3.45	2.14	2.57	3.64	2.91	2.06	2.53	2.58	3.20	2.95	3.22	2.71	3.63	2.87	3.67	4.16	2.20	2.96	2.92

[a] The meaning for the symbol of each observed variable is denoted in Table 4.

approximation (RMSEA) using AMOS 5.0 as the software. Because the sample size in this study is rather large, the χ2 index that is sensitive to sample size is not the adequate criterion to evaluate the model fit (Bentler, 1990; Hu & Bentler, 1995). The criteria adopted in this study to signify an acceptable model fit are: NFI ($\geq$.90; Bentler & Bonett, 1980), IFI ($\geq$.90; Bollen, 1989), CFI ($\geq$ .90; Hu & Bentler, 1995) and RMSEA (good fit, $\leq$ .05; fair fit with reasonable errors of approximation, .05~.08; mediocre fit, .08~.10; Browne & Cudeck, 1993: 145; Lin & Hwang, 2008: 72).

Results and discussion

The survey data obtained from 851 respondents were statistically analyzed by AMOS 5.0 in order to understand the fit of the initial model (Fig. 2) that was proposed based on the theoretical framework as described in the previous section. Based on the criteria to assess the model fit, the fit of the initial model could be further modified. Although all the loadings of variables have the values of significant effects, some observed variables have lower values of loading. The value of RMSEA indicates the fit of the initial model belongs to a fair fit with reasonable errors of approximation (RMSEA = .074). Four indexes, χ^2, NFI, IFI and CFI, for the assessment of the initial model are under the standard (χ^2 =1225.82 with 224 df, NFI = .84, IFI = .86, CFI = .86). The results of the fit assessment indicate that the initial model could be further modified.

After model modification by deleting the observed variables with lower values of loading, the fit for the final model, as shown in Fig. 3, is assessed as acceptable. Three indexes, NFI, IFI and CFI, that were under the standard in the initial model meet the standard of assessment in the final model (NFI = .94, IFI = .96, CFI = .96). All the loading of variables have the values of significant
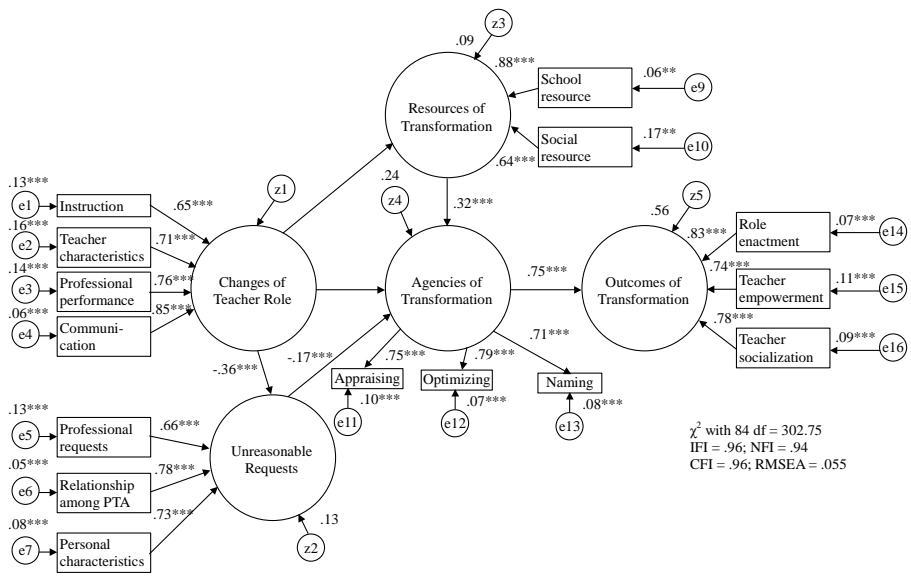
Figure 3　Standardized maximum likelihood estimates for the final model; the meaning of each latent variable is denoted in Table 2.

effects, and the value of RMSEA indicates the fit of the final model belongs to a fair fit with reasonable errors of approximation (RMSEA = .055). Although the value of χ^2 index still under the standard of assessment (χ^2 = 302.75 with 84 df), the χ^2 index, sensitive to sample size, is not an adequate criterion to assess the model fit because a large sample size is used in this study (Bentler, 1990; Hu & Bentler, 1995). According to the results of the assessment, the fit of the final model is acceptable.

　　Table 6 shows the reliability of individual observed variable, composite reliability of latent variable, and average variance extracted of the variables. The quality of measurement for the final model is acceptable according to the values demonstrated in Table 6. All the values for the reliability of individual

Table 6   The reliability of individual observed variable, composite reliability of latent variable and average variance extracted of the variables

Variables [a]	R^2 [b]	ρ_c [c]	ρ_v [d]
Change of Teacher Role(C)	—	.95	.82
C1 Instruction	.42	—	—
C3 Teacher characteristics	.50	—	—
C5 Professional performance	.58	—	—
C6 Communication	.72	—	—
Unreasonable Requests (U)	—	.95	.86
U3 Professional requests	.44	—	—
U4 Relationship among parents, teacher and student	.61	—	—
U5 Personal characteristics	.53		
Resources of Transformation (R)	—	.91	.84
R2 School resource	.77	—	—
R3 Social resource	.41	—	—
Agencies of Transformation (A)	—	.95	.87
A1 Appraising	.56	—	—
A3 Optimizing	.62	—	—
A4 Naming	.50	—	—
Outcomes of Transformation (O)	—	.95	.87
O1 Role enactment	.69	—	—
O2 Teacher empowerment	.55	—	—
O3 Teacher socialization	.61	—	—

[a] The meaning of each latent variable is denoted in Table 2.
[b] R^2: Reliability of individual observed variable.
[c] ρ_c: Composite reliability of latent variable.
[d] ρ_v: Average variance extracted.

observed variables are higher than .50, except for three variables, i.e. instruction (C1), Professional requests (U3), and social resource (R3). It indicates that the measurement errors for the three variables (C1, U3, and R3) are higher, while those of the other variables are acceptable. All the five values for composite reliability of latent variables are higher than .60. Furthermore, all of the five

values for the average variance extracted of the variables are higher than .50 (Bagozzi & Yi, 1988: 80). According to the results indicated in Table 6, the quality of measurement for the final model is acceptable.

The standardized maximum likelihood estimates for the final model in the form of a path diagram is presented in Figure 3. The final model contains five latent variables that are the same as those of the initial model, Change of Teacher Role (C), Unreasonable Requests (U), Resources of Transformation (R), Agencies of Transformation (A), and Outcomes of Transformation (O). However, the observed variables in each latent variable of the final model are different from those of the initial model. For instance, only three observed variables belong to the latent variable of "Agencies of Transformation" in the final model; on the other hand, five observed variables belong to the same latent variable of the initial model. It should be noted that all the loadings of the observed variables in final model are higher than .64 and have significant effects (Fig. 3).

The Hypothesis 1 of this study was tested and the result shows that "Change of Teacher Role" has a positive effect on the "Agencies of Transformation" with a standardized effect of .19 (Fig. 3). The Hypothesis 2 was also verified, and a positive effect of "Agencies of Transformation" on "Outcomes of Transformation" is found (standardized effect: .75; Fig. 3). The change of teacher role results in more agency performed by teachers and better outcomes of transformation achieved. The results can be interpreted by the view of "teachers as transformative intellectuals" proposed by Giroux (1983). Encountering the change of teacher role, teachers who are transformative intellectuals would perform their agency of transformation and have better outcomes of transformation (Giroux, 1983). The change of teacher role, acts as the crisis or impetus, initiates teachers to consider and carry out their agency to

transform this crisis or impetus. In the period of transformation, the teachers with higher level of Agencies are accustomed to think the adequacy in education for a new requirement on their teacher role from society. Such teachers, with higher level of Agencies, tend to obtain more rights and benefit for their students, school as well as themselves.

The positive effect of the "Change of Teacher Role" on the "Resources of Transformation," Hypothesis 3, was verified with standardized effect of .30 (Fig. 3). Moreover, the positive effect of the "Resources of Transformation" on the "Agencies of Transformation" was also verified as shown in Fig. 3 (standardized effect: .33; Hypothesis 4). The results reveal that the variable of "Resources of transformation" is an intervening variable from the variable of "Change of teacher role" to the variable of "Agencies of transformation". The results could be interpreted by the views that transformation depends on resources proposed by Guo (2001, 2002), Lipman-Blumen (1973), and Turner (1990). These evidences revealed that teachers usually attempt to perform their agencies of transformation when they have proper transformation resources, such as autonomy, school climate, and legal institutions.

The Hypothesis 5 of this study was tested and the results showed that "Change of Teacher Role" has a negative effect on the "Unreasonable Requests" (standardized effect: -.36; Fig. 3). The Hypothesis 6 was tested, and a negative effect was found for "Unreasonable Requests" on "Agencies of Transformation" (standardized effect: -.17; Fig. 3). It indicates that the teachers who perceived a higher-level change of their role have less perception on the requests being unreasonable. Furthermore, teachers with higher-level perception on "Unreasonable Requests" tend to have lower-level perception on the "Agencies of Transformation." It reveals that the variable of "Unreasonable Request" is an intervening variable from the variable of "Change of Teacher Role" to the

variable of "Agencies of Transformation." This finding probably results from the behaviors of repliers proposed by Dreeben (1973: 463), and the teacher cultures, which are conservatism, individualism, and presentism, proposed by Lortie (2002: 210-212). For example, teachers who agreed the importance for nowadays' teachers to participate the tasks of school management had a less awareness on whether the request of such participation is unreasonable or not. Owing to teaching time in classroom being reduced, such a request is unreasonable. Facing such an unreasonable request, teachers carry out few agencies of transformation by ignoring the request, or rejecting to reply the request. The results imply that the thinking traits of teachers are based on the rationality, rather than the irrationality resulting from the ideological oppression typically considered by transformative intellectuals (Giroux, 1997: 38; Goodman, 1988: 143).

The evidences presented in this study reveal that the transformation of teacher role is a process (Giroux, 1983: 120; McLaren, 2003: 193) in which teachers' agency interacts with social structure. The process formed by two steps, society-to-agency and agency-to-society, is found among the three latent variables of Change of teacher role (C), Agencies of teachers (A) and Outcomes of transformation (O) (Fig. 3). Both the variables of Change of teacher role and Outcomes of transformation are the variables belonging to the social structure. The fist step of the process, society-to-agency, is formed from C to A. The second step of the process, agency-to-society, is from A to O. The overall process represents the society-to-agency-to-society, and is formed from C to A, and then to O.

There are three routes, one direct and two indirect routes, to complete the first step of the process, from C to A (Fig. 3). The Change of teacher role could directly affect the Agencies of transformation, and this is a direct route, C-A (β

= .19). The two indirect routes, using the Resources of transformation and Unreasonable request as intervening variables, are C-R-A with β= .10 (.30 × .33) and C-U-A with β = .06 (-.36 × -.17), respectively. By three routes, C-A, C-R-A, and C-U-A, the Change of teacher role affects the agencies of teacher with a value of .35.

The second step of the process, A to O, is a form of agency-to-society. There is one route found in Fig. 3, A-O with β = .75. It reveals that the agencies of teachers, affected by the social structure of Change of teacher role, could affect the social structure.

Three routes, C-A-O, C-R-A-O and C-U-A-O, are presented in the overall process, society-to-agency-to-society, that is formed from C to A, and then to O. The route of C-A-O contains three variables with β = .14 (.19 × .75). The C-R-A-O and C-U-A-O contains four variables in a route with β= .07 (.30 × .33 × .75) and β = .05 (-.36 × -.17 × .75) respectively. By these routes, C-A-O, C-R-A-O and C-U-A-O, the Change of teacher role affects the Outcomes of transformation with a value of .26. All the three routes of transformation contain the intervening variable of Agency of teachers. It reveals that without the Agencies of teachers, Outcomes of transformation could not be achieved just from Change of teacher role. The interaction between agencies of teachers and social structures, i.e. Change of teacher role and Outcomes of transformation, is necessary to complete the process of transformation.

The evidences presented in this study also indicate that the variable of Agencies of teachers is important in the transformation of teacher role. Among the five latent variables in the model (Fig. 3), the teachers' Agencies is the only one that associates with all the other latent variables. The variable of Agencies of teachers is found to affect, positively and directly, the variable of Outcomes of transformation. On the other hand, it also shows that teachers' Agencies are

affected by "Change of Teacher Role" (β = .19), "Unreasonable Requests" (β = .33), and "Resources of Transformation" (β = -.17). Thus, the variable of Agencies of teaches becomes the intervening variable between Change of teacher role and Outcomes of transformation. It reveals that the teachers' Agency is the pivot of the transformation of teacher role. This finding is consistent with the perspectives that teachers as transformative intellectuals proposed by Giroux (1985: 376, 1988: 126), Goodman (1988: 143) and McLaren (2003: 204).

Three routes, which are C-A-O, C-R-A-O, and C-U-A-O, could be found in the transformation of teacher role from Change of teacher role to Outcomes of transformation (Fig. 3). Among the three routes, the route of C-A-O has the highest value of influence with β = .14. To achieve the Outcomes of transformation, teachers could seek the resources (C-R-A-O, β= .07) or consider the reasonableness of request (C-U-A-O, β= .05) to perform their agencies.

Conclusions and suggestions

According to empirical survey data, a model for the transformation of teacher role is constructed in this study. It is found that the model contains five latent variables, i.e. Change of teacher role, Unreasonable Requests, Agencies of Transformation, Resources of Transformation and Outcomes of Transformation. Among the five variables, the teachers' Agency that associates with all the other four variables is the pivot of the model. The teachers' Agency has positive effects on the Outcomes of transformation. On the other hand, the teachers' Agency is positively affected by Change of teacher role, Resources of transformation, and negatively affected by Unreasonable requests.

It also shows that the transformation of teacher role is a process resulting

from the interaction between agencies of teachers and social structures. A process formed by two steps, society-to-agency and agency-to-society, is found in this study. The first step of the process has three routes, C-A, C-R-A, and C-U-A, for the Social structure affecting the Agency. The second step of the process, A-O, is the affection of Agency toward Social structure. Moreover, the overall process, presented the society-to-agency-to-society process, has three routes, i.e. C-A-O, C-R-A-O and C-U-A-O. It reveals that without the Agencies of teachers, the Outcomes of transformation could not be achieved just from Change of teacher role. The interaction between agencies of teachers and social structures is necessary to complete the process of transformation.

Three routes, which are C-A-O, C-R-A-O, and C-U-A-O, could be found in the transformation of teacher role from Change of teacher role to Outcomes of transformation. The results reveal that the variable of Change of teacher role affects the Outcomes of transformation by three possible routes.

According to the conclusions of this study, three suggestions are made for teachers and a suggestion is recommended for the further researches:

Promoting the performance of agency

It is found in this study that teachers' Agency is the pivot of the transformation of teachers' role. Without the Agencies of teachers, Outcomes of transformation could not be achieved just from Change of teacher role. It implies that encountering the change of teacher role, teachers who perform agencies in their role transformation, have better outcomes of transformation. Therefore, it is important for teacher to enhance their agencies in order to transform their teachers' role. According to the results of this study, teachers' agencies consist of three dimensions that are naming, appraising and optimizing. It is suggested for teacher, either pre-service or in-service, that comprehending

and practicing these three dimensions of teachers' agencies are important for teachers to transform their role in order to empower themselves and promise the attainment of social reconstruction.

Providing the reflection or inquiry learning environment

According to the results of this study, teachers who perceive higher levels of "Change of Teacher Role" conceive lower levels of "Unreasonable Requests" even though the requests are actually unreasonable, such as the request to participate the task of school management. That is to say, the more reasonable requests result in the better performance of teachers' Agencies. However, it should be noticed that this rationality might be a type of ideological oppression based on the view of critical pedagogy. Therefore, the reflection and inquiry are important for a teacher to understand the background of request or the necessary of teacher role change. It is suggested for teacher education to provide teachers the opportunities of reflection and the practice of inquiry in order to enhance teachers' judgment in the necessary of role transformation.

Learning how to search transformation resources

It is found in this study that these Resources positively affect Agencies of Transformation. The supply of more favorable resources, such as inquiry learning space, autonomy, good communication channels, supportive school climate and legal institutions, is essential for teachers to transform their teacher role. Therefore, in teachers' teaching practice, learning how to obtain such transformation resources is necessary for primary school teachers.

Suggestions for further researches

The instrument, "Inventory of the Perception for Teachers Role

Transformation," was used in this study. To form the final model, the initial model that formed from the observed variables of this instrument was modified by deleting some observed variables with lower values of loading. It reveals that the instrument could be further modified to obtain better validity although this instrument has acceptable validities in each sub-inventory. While the final model in this study has fair fit with reasonable errors of approximation, further cross-validation using independent samples as subjects is recommended.

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