

## LOOKING AT TEACHER PROFESSIONAL DEVELOPMENT NEEDS FROM THE SOCIOECONOMIC ASPECT: TEACHERS' PERSPECTIVES FOR NEEDS, IMPACTS, AND BARRIERS

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### ABSTRACT

School teachers are considered one of the main drivers of China's socioeconomic modernization and development process, and this locates the school teachers' professional development at the center of interest. The current study analyzed the secondary school teachers' perspectives on their professional development using the Teaching and Learning international survey (TALIS)-2018 questionnaire data, which is provided by Organization for Economic Cooperation and Development. According to a national sampling program, the participants were chosen using standardized random sampling methods, including probability equivalent to size throughout specific strata. The findings were clustered under the main themes of Teachers' needs for professional development; Impacts of participated activities on teachers' professional development; and Barriers to teachers' participation in professional development activities. Data analysis suggested that the highest professional development needs were related to approaches to individualized learning and gaining pedagogical competencies related to teachers' subject fields, while the lowest demand was related to communicating with people from different cultures or countries. Besides, knowledge and understanding of the subject fields, pedagogical competencies in teaching subject fields, and knowledge of curriculum had the highest impacts on teachers' professional development aspirations. Finally, conflict with the work schedule was the most commonly reported barrier to teachers' participation in professional development activities.

**Keywords:** Chinese socioeconomic development; Teacher professional development; TALIS Survey, Shanghai Secondary School Teachers; Teacher education.

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## INTRODUCTION

One main feature that Chinese socioeconomic modernization relies on is the development of education, science, and technology (Hayhoe, 2019). One of the main drivers of this modernization process is considered school teachers, who are expected to develop sophisticated structures of teaching and help their students develop essential student competencies to support their challenging study and work environment in the 21<sup>st</sup> century (Martin et al., 2019). This necessity locates the teacher's professional development at the center of interest, for instance, effective and efficient professional development mechanisms are needed to help teachers refine their pedagogies and show greater performance in their occupations. Previously, studies have shown that teacher agency and identity, principal instructional leadership and role of the administrators (Liu and Hallinger, 2018), and school context were some of the factors to influence teachers' professional development. Furthermore, access to professional development programs was considered important to keep the teachers engaged in the changing trends in education and teaching strategies (Darling-Hammond et al., 2017). As a result of the issues derived from teachers' professional identity, available job resources, and other factors that are needed to stimulate their professional growth, secondary school teachers' burnout is an often-found phenomenon in China (Tsang et al., 2022).

Conditions and results of teacher professional development activities have effects on quality of teaching. Previous research has also identified that innovative and collaborative techniques in professional development are an aid in raising the quality of teaching (Kavanagh et al., 2020). Innovative approaches may include inquiry-based, collaborative, constructive, and robust material to strengthen professional development programs (Dittrich et al., 2022). In the same context, we focused on secondary school teachers' experiences in Shanghai, one of the largest cities in China. It has an independent and unique education system compared to other provinces of the countries controlled by the Ministry of Education (MOE), Shanghai. Consistent with other parts of the world, Shanghai spends large amounts every year on teachers' professional development programs to uplift teachers' quality and competence (Liu et al., 2016; Zhang and Gálvez, 2021). However, there is limited evidence of the success of these efforts. Therefore, this study analyzed the secondary school teachers' perspectives on their professional development. Additionally, the study investigates the teachers' needs and the impact of their professional development. The following research question(s) guided this study:

**RQ-1:** What are the essential needs of Shanghai secondary school teachers to participate in professional development activities?

**RQ-2:** What types of educational practices have had significant impacts on teaching experiences of Shanghai secondary school teachers?

**RQ-3:** In which major professional development programs have Shanghai teachers taken a part?

**RQ-4:** What are some of the barriers that Shanghai teachers are encountering in joining professional development activities?

This study will contribute to the literature and inform policymakers at MOE-China who support the importance of professional-long career development opportunities in Shanghai, China.

## **1. LITERATURE REVIEW**

It has been well-documented in the literature that teacher professional development programs ought to be introduced to improve teaching quality and facilitate teachers to overcome the challenges they face. Besides, it is evident in the wide body of the literature that quality ongoing or continuous professional development contributes towards important quality outcomes, such as creating a pleasant school environment (Daily et al., 2020), enhancing teachers' knowledge (Larson et al., 2020), developing various teaching pedagogies, and learning digital competencies, particularly after the outbreak of Covid-19 pandemic.

Since teachers are the pivot in every education system across the world. Qualified and trained teachers are vital for improving students' learning, the performance of schools, and the overall quality of education. Although teachers strive for better learning outcomes, they need to improve their teaching and learning pedagogies as per the learning requirements of 21st-century learning requirements. Equipping the teachers with 21st-century tools and techniques to make their nation prosper and succeed could just be possible. Teachers who are expressive towards their professional development needs are more likely to learn more and improve their self-efficacy (Kasalak and Dağyar, 2020). Another study by Tang et al. (2021) found that teachers' need for professional development should be considered seriously, and necessary action should be taken. Therefore, it can be conceived that teachers should know about the areas of their professional development that will be helpful for the authorities to arrange suitable and relevant training for them. In other words, it can be anticipated that need-based professional development activities can provide better opportunities to learn (de Jong et al., 2019).

Analyzing teachers' needs can allow trainers or instructional designers to design their lessons according to their needs. For instance, there are different areas associated with the needs of teachers; some of the main areas include pedagogies, content or subject matter, planning, and management of classrooms (de Jong et al., 2019). Some other studies (Backman and Barker, 2020; Kind and Chan, 2019) found that school teachers want to improve their understanding of pedagogical content: learners, teaching strategies, curriculum, and evaluation. Professional activities of new teachers are mostly related to classroom management, how to search for needed resources, and how to manage classes and student behavior (Hume et al., 2019).

It has always been a concern for the authors and policymakers to explore the impact of teacher professional development activities. However, studies make various conclusions on the impact of professional development; some studies found that the current pace of professional development does not meet the standards to create a significant effect on teachers' practices or students' learning outcomes (Darling-Hammond et al., 2009), while some researchers realized that professional development has several long-term and significant impacts (Hume et al., 2019), such as professional development training substantially affects teachers' skills and abilities to develop content knowledge. By emphasizing the importance of quality teaching, it was suggested that teacher training and evaluation correlate substantially with student academic success (Darling-Hammond et al., 2017). Thus, from the above discussion, it can be assumed that various research emphasizes the importance of quality teaching in enhancing student academic achievement. However, a

question about the quality of professional development is also debatable. Quality and standard of training improve the teachers' performance and, ultimately, enhance students' learning outcomes.

After reviewing the literature, it has been found that challenges are always there in successfully implementing teachers' professional development; however, adequate support can help address those challenges. For instance, timing of teachers professional development programs may not match with their work hours, which can result in failure for participating in professional development activities (Cheng and Chen, 2022). Therefore, barriers for teachers to participate in their professional development would significantly affect the ability and quality of teachers, which is directly proportional to the student's learning outcome. Thus, barriers faced by the teachers should be addressed further. Therefore, this research aimed to find the barriers teachers face to their participation in professional development that can help the policymakers and school leaders make some robust policies and decide to remove these barriers. These steps can help raise the teaching and learning standards in China.

## **2. METHODOLOGY**

Secondary data used in the current study were collected through the Teaching and learning international survey (TALIS)-2018 questionnaire by Organization for Economic Cooperation and Development (OECD, 2018). The survey consists of different Likert scales and dimensions like variables and items. Most items are crucial to the teachers' support for professional development programs, their impact, barriers, and needs. The survey consists of 14 different topics, including teacher's pedagogy, student assessment, approaches to individual learning practices, and content. Teachers were also asked about the possible assistance they received in their professional development activities. Thus, this research uses data from Shanghai, China, collected between March and May 2018, with a dimension reflecting teachers' perspectives.

According to a national sampling program, the participants were chosen using standardized random sampling methods, including probability equivalent to size throughout specific strata. Lower secondary teachers and their school representatives became the target population for TALIS in public and private schools. The OECD team identified a selection of schools and teachers randomly. A minimum representative sample of at least 20 teachers from each of the 200 schools was randomly selected in each participating region. Lower secondary teachers and their school representatives became the target population for TALIS in public and private schools. However, this study utilizes the data from the TALIS-2018-Shanghai-China survey with a dimension that reflects teachers' perspectives. Data were analyzed using SPSS. 3976 teachers from Shanghai, China, participated in the TALIS-2018 survey. Tables 1 and 2 show the gender and age-wise division of the participants.

**Table 8:** Teachers' Gender and Level of Education

Gender	Frequency	Percentage	Level 5 (Bachelor or equivalent)	Level 6 (Masters or equivalent)	Level 7 (PhD or equivalent)	Level 8 (Post Doc or equivalent)
Male	2941	74	15	2478	437	1
Female	1035	26	20	935	77	0
Total	3976	100	35	3413	514	1

The number of female participants was 2941, and the number of male participants was 1035. The highest level of education teachers completed is level 6 (Having a Master's Degree), which is 87%. 13 % of teachers have a Ph.D. degree at level 7. The teachers who have Bachelor's or equal degree were 9 %.

**Table 9:** Teachers' age group

Rang of Age group	Frequency	Valid Percent
Under 25	119	3.0
25-29	534	13.4
30-39	1316	33.1
40-49	1418	35.7
50-59	566	14.2
60 and above	22	.6
Total	3975	100.0

Most teachers were 40-49 years old, around 36% of the total. The 2<sup>nd</sup> highest range was 30-39 years old, approximately 33 % of the whole; only 3% were under 25 years old

### 3. RESULTS

#### 3.1. Teachers' needs for professional development

Teachers have been asked to provide their perception of their professional development need on a 4-point scale from "low level of need" to "high level of need." A total of 14 items were included in the survey, as shown in Table 3. The 14 items were coded as 27A to 27N. Table 3 shows that the highest professional development need was related to "*Approaches to individualized learning*." The overall mean of this need was 3.09, and the demand for this activity among female teachers (mean=3.09) was high than among males (mean=3.08). The 2<sup>nd</sup> highest demanded professional activity was "*Pedagogical competencies in teaching my subject field*" The overall mean of this item was 3.05. The demand for this activity was higher among male teachers (mean=3.06) than female teachers (mean=3.04). The first lowest demand was related to "*School management and administration*," having a mean value of 2.26, and the second lowest demand was "*Communicating with people from different cultures or countries*," having a mean value of 2.39.

**Table 10:** Perceived Needs and Variations for Teachers' professional development activities

TALIS Code	Perceived needs	Overall		Gender	
		Mean	Standard Deviation	Female	Male
27A	Prof. development needs knowledge and understanding of my subject field(s)	2.95	.890	2.95	2.93
27B	Prof. development needs Pedagogical competencies in teaching my subject field(s)	3.05	.860	3.04	3.06
27C	Prof. Development needs knowledge of the curriculum	2.96	.872	2.95	2.97
27D	Prof. development needs Student assessment practices	3.03	.833	3.02	3.07
27E	Prof. Development needs ICT skills to teach	2.98	.858	2.96	3.02
27F	Prof. development needs Student behaviors and classroom management	2.94	.915	2.92	2.98
27G	Prof. development needs School management and administration	2.26	1.091	2.21	2.39
27H	Prof. development needs Approaches to individualized learning	3.09	.839	3.09	3.08
27I	Prof. development needs Teaching students with special needs	2.68	1.000	2.67	2.71
27J	Prof. development needs Teaching in a multicultural or multilingual setting	2.56	1.047	2.59	2.49
27K	Prof. Development needs to teach cross-curricular skills	2.88	.958	2.90	2.84
27L	Prof. development needs analysis and use of student assessments	2.90	.898	2.88	2.93
27M	Prof. development needs Teacher-parent co-operation	2.86	.928	2.87	2.84
27N	Prof. Development needs to communicate with people from different cultures or countries	2.39	1.081	2.41	2.33

### 3.2. Impacts of participated activities on teachers' professional development

In the survey questionnaire, teachers were asked to report their progress as teachers and the effects of given professional development activities. The questionnaire also asks teachers whether they were previously interested in any of the 14 activities mentioned previously. The teachers who replied ' YES ' were asked to rate their perspective from low impact to high impact on a 4-point scale. Since the TALIS survey documents teachers' self-perceptions, the findings should be viewed with particular concerns, especially if the interpretation of teachers' impact indicates the usefulness of the professional development activities in which they were engaged in.

**Table 11:** Perceived impacts and variations of teachers' professional development activities

TALIS Code	Perceived impacts	Overall			Gender	
		No. of Part.	Mean	Standard Dev.	Male	Female
23A	Areas prof. Development. Knowledge and understanding of the subject field(s)	98.3%	1.02	.131	1.01	1.02
23B	Areas of professional development Pedagogical competencies in teaching subject field(s)	98.2%	1.02	.134	1.02	1.02
23C	Areas of professional development. Knowledge of the curriculum	96.0%	1.04	.195	1.04	1.04
23D	Areas of professional development. Student assessment practices	85.2%	1.15	.355	1.15	1.14
23E	Areas of professional development. ICT skills for teaching	77.2%	1.23	.420	1.24	1.21
23F	Areas of professional development. Student behaviors and classroom management	79.9%	1.20	.402	1.20	1.20
23G	Areas of professional development. School management and administration	36.2%	1.64	.481	1.65	1.59
23H	Areas of professional development. Approaches to individualized learning	80.7%	1.19	.395	1.20	1.18
23I	Areas of professional development Teaching students with special needs	46.0%	1.54	.498	1.55	1.50
23J	Areas of professional development. Teaching in a multicultural or multilingual setting	43.05	1.57	.495	1.56	1.58
23K	Areas of professional development. Teaching cross-curricular skills	56.1%	1.44	.496	1.44	1.43
23L	Areas of professional development Analysis and use of student assessments	64.9%	1.35	.477	1.36	1.31
23M	Areas of professional development Teacher-parent co-operation	62.9%	1.37	.483	1.36	1.40
23N	Areas of professional development Communicating w. people from diff. cultures or countries	22.4%	1.78	.417	1.78	1.75

Table 4 reveals that the activities most performed by the teachers were aligned with (23A) *Knowledge and understanding of the subject field(s)* (98.3%), (23B) *Pedagogical competencies in teaching subject field(s)* (98.2%), and (23C) *Knowledge of the curriculum* 96%. On average, Shanghai teachers indicated that “(23N) *Communicating with people from different cultures or countries with mean=1.78*” and “(23G) *School management and administration with mean= 1.64*” were correlated with the highest impact.

### 3.3. The impacts of teachers' needs on professional development

With regards to the comparison between professional development needs and impacts, it is revealed that the activities related to “27G: School management and administration” and “27N: Communicating with people from different cultures or countries” have the highest impact on their professional development aspirations, and therefore, teachers have the lowest need of these two activities, as shown in Table 5.

**Table 12:** Professional development needs and impact

Areas of professional development	Lowest needs		Highest impact	
	Code	Mean	Code	Mean
School management and administration	27G	2.26	23G	1.64
Communicating with people from different cultures or countries	27N	2.39	23N	1.78

### 3.4. Barriers to teachers' participation in professional development activities

In Shanghai, secondary school teachers were asked to indicate the barriers to participating in professional development activities. Teachers were provided with seven options.

**Table 13:** Perceived barriers and variations to participation in teacher's professional development activities

TALIS Code	Perceived Barriers to professional development	% strongly agree	Overall		Gender	
			Mean	Standard Deviation	Male	Female
28A	I do not have the prerequisites	3.6%	1.88	.810	1.85	1.95
28B	Professional development is too expensive	4.3%	2.07	.779	2.05	2.12
28C	There is a lack of employer support	5.1%	2.08	.788	2.08	2.09
28D	Professional development conflicts with my work schedule	12.1%	2.54	.864	2.54	2.56
28E	I do not have time because of family responsibilities	6.6%	2.29	.811	2.28	2.33
28F	There is no relevant professional development offered	4.6%	2.11	.755	2.11	2.10
2G	There are no incentives for participation in Prof. Development.	10.4%	2.43	.851	2.42	2.47

Table 6 shows that 12.1% of teachers reveal "(28D) conflict with the work schedule," the most commonly reported barrier to their participation in professional development activities. There is no slight difference between the perception of male teachers (mean=2.54) and female teachers (mean=2.56). The dispute with the work schedule on the job has identified the scheduling of the professional development programs of the instructor to be insufficient. The mean of the female teachers is higher than the male, who think that 28D is a barrier for them to participate in teachers' professional development programs. The second most reported barrier to participation in teachers' professional development programs is "28(G) no incentive for participation in professional development".

### 3.5. Type of activities for professional development

Concerning the effect of styles of professional development innovations, teachers' answers are believed to represent directly or indirectly the general experience. Table 7 indicates that nine types of teachers' professional development activities (22A-22I) were asked to denote whether they took part in the current year. The four models that had the highest turnout were online course seminars (95%), education conferences (94.2%), reading professional literature (92.4%), and peer or self-observation and coaching (89.7%). The "22E: Observation visits to business premises (15.3%)" and "22H: Participation in a network of teachers (58.5%)" were the activities that earned the lowest scores in terms of participation.



**Table 14:** Percent (YES) participation, types, and variation of teachers' professional development

TALIS Code	Type of professional development activities	Overall			Gender	
		Overall % (Yes)	Mean	Standard Deviation	Male	Female
22A	In-person courses seminars	74	1.26	.439	1.25	1.28
22B	Online courses seminars	95	1.05	.218	1.05	1.05
22C	Education conferences	94.2	1.15	.353	1.14	1.15
22D	Formal qualification program	84.7	1.82	.387	1.83	1.79
22E	Observation visits to other schools	60.6	1.39	.488	1.40	1.36
22F	Observation visits to business premises	15.3	1.85	.362	1.86	1.81
22G	Peer or self-observation and coaching	89.7	1.10	.294	1.09	1.11
22H	Participation in a network of teachers	58.5	1.41	.492	1.42	1.39
22I	Reading professional literature	92.5	1.07	.251	1.07	1.06

### ANOVA results concerning teacher's age with regards to need, impact, and barrier

The results show that the perceived needs for teachers' professional development programs are similar for all age groups (All five). Cronbach's Alpha is 0.936, with an  $F$  value of 46.228; the  $P$  value is significant at the .000 level. Surprisingly, an average score related to perceived needs for professional development had a negative correlation with most of the 14 variables while the age group of teachers was higher. A significant relationship was found between the age of teachers and a perceived need for two items related to teachers' professional development practices. These activities include "School management and administration" and "Teaching in a multicultural or multilingual setting."

Regarding perceived impact, the ANOVA test results  $F$  value 1.706 having 0.819 Cronbach's Alpha, which is insignificant at 0.05. For perceived barriers to involvement in professional development programs for the different age groups of teachers, the ANOVA test shows that the  $F$  value is 6.014 with Cronbach's Alpha of 0.868. The collection of one-way ANOVAs demonstrates significant differences in teachers' age, even with all seven barriers to teachers' professional development. The results indicate that as the teacher's age increases, the means of these two perceived barriers fall: "I don't have the prerequisites," and "there's a lack of support from the employer." Teachers aged 25 to 29 and 30 to 39 report the most perceived barriers.

**Table 15:** ANOVA results concerning teacher's age

Variables	No. of Variables	Cronbach's Alpha	F-value	P-Value
Barriers to Teachers' professional development participation	7	.868	6.014	.000
Needs for Teachers' Professional development activities	14	.936	46.228	.000
Impact of Teachers' professional development activities	14	.819	1.706	.130

Overall, the number of teachers' professional development that teachers earned decreased with Age across Shanghai secondary school teachers, and huge differences were reported concerning 10 of the 14 age-related professional development programs. The older teachers gave the higher score

#### **4. DISCUSSIONS**

The secondary school teachers from Shanghai, China demonstrated that many of the professional development activities were meaningful to them, and they felt that the activities related to “communicating with people from different cultures or countries” and “school management and administration” had the highest impact. Teachers rated “approaches to individualized learning” and “pedagogical competencies in teaching my subject field” The highest among 14 activities needed for professional development. It is understood that teachers need training related to the approaches to individualized learning to strengthen their skills to overcome these challenges, while other teachers’ needs are related to pedagogical competencies. We also interpret that professional development is also needed to increase teachers’ eligibility to shift among workplaces, generate higher income, thus enhance economic conditions and social status. Individualized learning is a style of teaching where content, learning technology, and learning pace depend on each learner's ability and interests (Bartz and Kritsonis, 2019; Ngo et al., 2020; Nguyen et al., 2022). It is also called individualized instruction/learning, which can be ensured with the help of a universal learning design (Qazi et al., 2018), that may provide students with equal learning opportunities. As a result, findings suggested that the training should be designed in a way to keep the professional, social and economic needs of the teachers (Grudnoff et al., 2016; Xuan et al., 2019).

Secondary school teachers in Shanghai also needed to improve their skills in teaching methods related to specific subjects. The teaching pedagogies vary according to the subjects; for example, the teaching method of mathematics differs from the teaching method of science or other subjects. Hence, teacher training institutes should design teachers’ professional development programs to help teachers strengthen their pedagogical skills accordingly (Gess-Newsome et al., 2019). As a result, they could contribute to students learning effectively. This is particularly consistent with the longstanding approach by Mundry and Loucks-Horsley (1999) that instructors need professional development that emphasizes content and pedagogical approaches and allows them to change their teaching practices (Bai, 2019). Teachers also gave a high score for “student assessment practices.” It can be interpreted that teachers from Shanghai may not feel fully prepared to assess students’ learning outcomes, and therefore, further strategies to evaluate students’ learning using different strategies can be developed.

The most critical barrier to teachers’ professional development participation was associated with a work schedule conflict. Some other studies (Akram and Hussain Ch, 2020; Smith, 2020) also found that the conflict of determined work schedule with the time that teacher training programs are launched, is among common barriers to professional development of teachers. Where teachers can be learners in an ongoing setting. Further, the second most significant barrier the teachers reported was “There are no incentives for participation in professional development.” It demonstrates that teachers should be given incentives to motivate them to participate in ongoing trainings, and the benefits gained from professional development programs can be used to create a better learning environment in classrooms (Müller and Mildenerger, 2021). To apply the expertise to their classwork, however, teachers ought to have sufficient motivation, beliefs, and skills to overcome barriers such as limited preparation and instruction time (Sancar et al., 2021; Sedova et al., 2016).

Some of the recommendations for policymakers can include that, teacher's perceptions on their needs and barriers to fulfill them, as well as the factors, which have impacts on these processes should be further studied through semi-annual surveys in Shanghai secondary schools. Furthermore, monitoring and evaluation should be part of professional development programs to track the implementation and impact of training. Teachers should be involved in the training design processes and their opinions and suggestions should be prioritized in policy-making processes. It is vital to make the teaching and learning processes more effective and efficient to meet the requirement of 21<sup>st</sup> century learning.

## **CONCLUDING REMARKS**

This research suggests that teachers can reach to a higher potential for teaching-related interactions when then can tailor useful contents from professional development activities to their skills and knowledge. In one way this can be achieved by supporting teachers' professional development through development of professional development programs, arrangement of professional development activities. Even though the TALIS survey contains variables relevant to teacher beliefs and their need to engage in professional development, future studies should try to fully understand the causal relationship regarding participation in professional development activities, teachers' social-emotional aspects, and teacher beliefs about teaching and learning. Therefore, future research may reproduce such research with a broader teacher population to establish if the same trends, themes, and results are consistent across a more general group of teachers (such as private and public schools and other provinces of China).

The findings of the study indicate that the scope and form of professional development provided in schools may influence the degree to which teachers feel that their needs are met by professional development. It is also proposed that researchers conduct more work on transformation prospects for school-based teachers' professional development to participate, invest, and the willingness of further educators to participate with a specific issue on a long-term basis. China has now been increasing Shanghai pilot training for excellent teachers of government in other provinces in the country. Moreover, China will invest much money in teachers' capacity building. This study will help policymakers to invest in those areas where teachers are willing to strengthen their capacity. This way, teachers can increase their skills in the specified areas to support teaching and learning processes. This research study has also raised key questions for Shanghai that could be answered by teachers or researchers working in collaboration to broaden the knowledge base in qualified teacher development: what is the impact on student performance of teachers with no experience in the related disciplines to teach students?

The present study used age and gender as independent variables. Future research should also recognize the teacher's teaching experience, subject matter, size, and location in Shanghai or other provinces. Whereas the study defines teachers' attitudes regarding professional development, in an even more general context, it cannot explain the school environment, teachers' performance, teacher knowledge/skills, or teachers' social and emotional skills. This study will help decision-makers and educational leaders evaluate and implement policies supporting teachers and the best requirements for successful teaching and learning. This will enable teachers, school administrators, and stakeholders in education to focus on and evaluate their training to achieve further improvements.

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