Continuing professional development for college teachers in Bangladesh: Exploration of critical success factors

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Abstract
Purpose: Continuing Professional Development (CPD) is a fundamental issue for knowledge management in teaching. Teachers get more benefits from it because of the opportunities for participation in training, workshops, seminars, symposiums, mentoring programs, research work, coaching, and others. This study explores college teachers' perceptions about CPD at the college level for knowledge management and lifelong learning and identifies the factors that contribute to designing CPD.

Methodology: An organizational case study with mixed methods and a multistage cluster sampling technique were applied to carry out this research. Because of the COVID-19 pandemic, college teachers' face–to–face appointments were converted to e–mail communication to capture data.

Findings: Of the 63 scheduled appointments, 37 (58.73%) respondents sent their responses via e–mail. For proper empirical evaluation, we used the non–parametric Mann–Whitney and Shapiro–Wilk tests. Tested and confirmed result of the study suggested that age, subject, length of service, gender, in–house training, necessary skills, administrative support, networking capacity, and online facility are the important contributors to CPD and knowledge management.

Implications of the study: The facts and findings of our study are very important for policymakers and stakeholders to formulate appropriate policies.

Keywords: Continuing professional development, knowledge management, human resource development, in–house training.

1. Introduction

For all professionals, continuing professional development (CPD) is a critical issue; the teaching profession is no exception. Teachers get more benefits from it because they get more participation opportunities in training, workshops, seminars, conferences, symposiums, mentoring programs, research work, discussion forums, and coaching activities. CPD is a lifelong process in which teachers can develop intellectual attitudes, create new forms of knowledge, and surpass existing frontiers of knowledge, perfectly tuning their teaching and learning practices to meet students' needs and nurture well-rounded human beings. It provides diversified teaching and learning practices through curriculum development, effective learning philosophy, online technology, formative assessment, and lesson plan. Many educational institutions in the world successfully introduced CPD to develop teaching and learning atmospheres (Armour & Duncombe, 2004). In-house CPD training can play a crucial role in maintaining lifelong learning and create a bridge between improved teaching and learning for capacity building. It functions as a technique of enhancing teachers' abilities and professionalism, which are critical for knowledge management and sustainable education and learning.

There are a varied number of in-service training for college teachers in Bangladesh offered and conducted by government and non-government institutions like the National Academy for Education Management (NAEM), Directorate of Secondary and Higher Education (DSHE), Higher Secondary Teachers Training Institute (HSTTI), National University of Bangladesh, Secondary and Higher Secondary Education Board, and Bangladesh Rural Advancement Committee (BRAC), National Academy for Computer Training and Research (NACTAR), Bangladesh Madrasah (Muslim religion-based educational institution), Teacher's Training Institute (BMTTI), Government Teachers Training College, and Technical Teachers Training College (TTTC). In-house training for CPD is rarely organized at the college level in Bangladesh because of improper conceptualization of CPD, lack of explicit guidelines and practices, no budget allocation for in-house training, lack of a policy framework for CPD, and implementation challenges for in-house training (Rahman et al., 2019). As a consequence, college teachers are less familiar with the concept and practice of peer observation, mentoring practice, cutting-edge knowledge, knowledge management, and instructional leadership. They rarely engage in subject-based discussions with experts, experienced teachers, and senior teachers, and they rarely initiate quality assurance activities in teaching as part of professional teaching and knowledge management. Besides, no pre-service training or professional degree is mandatory for teaching at the college level in Bangladesh (Ahsan et al., 2012). Newly hired instructors walk straight to the classroom and conduct the session, without having any prior CPD-related training. Orientation programs or in-house training for new teachers are unusual at most colleges. Very few colleges arrange orientation programs or in-house training for new teacher(s). After three or four years of service, government college teachers recruited by the Bangladesh Public Service Commission (BPSC) receive foundation (in-service) training from the NAEM. Teachers of government colleges frequently participate in different training

programs at different training institutions, most of them in Dhaka, the capital city of Bangladesh. More engagement in training programs in different institutions requires more time, budget, and resource persons. In addition, it hampers teaching activities during the training period. However, there is no such opportunity for non–government college teachers for further professional development and knowledge management. The above statement sets the stage for the origins of ideas and provides motivation for doing this research.

Our study gives an overview of CPD practices at the college level in Bangladesh. The study findings are critical for all training and educational institutions, academics, policymakers, and other stakeholders who desire a more nuanced knowledge of how to maximize CPD's potential advantages. However, the following questions remain: what are the critical success factors for launching college–level CPD training in Bangladesh? How can we implement CPD at the college level?

1.1 Objectives

To answer the research questions, the main objective of our study is to explore teachers' perception of CPD at college level for lifelong learning, knowledge management, and sustainable education. The specific objectives of the study are the critical success factors and their implementation strategies for reliable CPD at the college level.

The rest of the paper is structured as follows: section 2 covers reviews of the empirical literature on CPD; section 3 illustrates the conceptual framework of CPD; section 4 covers the methodology of the study; section 5 outlines the results and discussion; and some concluding remarks are offered in Section 6.

2. Literature review

CPD works as an accelerator of knowledge management (KM). For instance, CPD is gaining more popularity in teaching because of its contribution to KM in recent years (Li & Edwards, 2014). Within this perspective, CPD is important for every teacher to maintain professionalism along an appropriate path. It continuously updates teachers' skills and knowledge, which are essential to being effective teachers (Ovenden-Hope et al., 2018). It helps to explore a teacher's hidden knowledge, develop subject matter knowledge, general pedagogical knowledge, formal knowledge, and experimental knowledge (de Vries et al., 2013). A teacher can learn from a different form of CPD through peer observation, mentoring, coaching, group practice, professional development courses, workshops, and seminars (Dunn & Doolittle, 2020; Admiraal et al., 2019). Teaching skill, knowledge management, practical experience, professional learning, and high level of competence are affected by CPD (Coventry et al., 2015).

CPD is a key to raising a teacher's quality. It provides the guidelines for knowing the subject, understanding the teaching context, understanding the knowledge management practices, planning, demonstrating effective teaching behavior, supporting and mentoring teaching

performance of newly joined teachers, and monitoring teachers' potential and performance (Martin et al., 2019). Fresh teachers, on the whole, face unexpected teaching challenges that they did not learn about in their graduate coursework. They are unfamiliar with knowledge and classroom management, strategies for student engagement, case studies, the use of PPT in the classroom, interaction with senior teachers, assessment techniques, and strategies for implementing scaffolding, metacognition, the flip classroom, student-centered learning, and theory-based lesson plans. New teachers may learn more about how to overcome everyday obstacles in teaching, develop knowledge management, and improve their teaching quality with further support through mentoring, coaching, workshops, seminars, and conferences (Mizell, 2010). Many universities around the world are implementing CPD for their faculty members in order to stimulate specific essential competences in teaching practice, research, and knowledge management (Canaran & Mirici, 2020). The University of Pennsylvania in the USA, Khon Kaen University in Thailand, and Hong Kong University in Hong Kong are few of them (Jacob et al., 2015).

In-house CPD training ensures sustainable education, lifelong learning, and knowledge management. An appropriate framework is the main building block for executing CPD properly (de Alwis Jayasuriya et al., 2021). Teaching plans for content-based teaching, networking among teachers, and available resources in institutions are essential to ensure proper CPD that leads to lifelong learning and knowledge management (Dymock & Tyler, 2018; Kwofie et al., 2018). For instance, plan-based teaching in any educational institution helps to provide proper guideline for knowledge management (Burrow et al., 2016). In the case of networking, knowledge management is inextricably linked with teacher collaboration (de Latt & Schreurs, 2013). Existing physical and intellectual resources (such as infrastructural support, classroom management, internet facilities of every institution, and knowledge, wisdom, experience, and expertise of senior teachers) can also play a critical role in knowledge management and professional development (Lifshitz-Assaf, 2018; Sajja & Akerkar, 2010).

Many studies have looked into the impact of continuous professional development (CPD) for teachers, institutional experience of CPD, and determinants of CPD (Gore et al., 2017; McMahon, 2017; Sum et al., 2018). But such existing studies did not cover college teachers' CPD for lifelong learning, knowledge management, and professional development in Bangladesh. This study may be the first attempt to explore the essential determinants of CPD, assess its effectiveness for knowledge management, and design need-based CPD for college teachers in Bangladesh.

3. Conceptual framework
In-house CPD for teachers needs a specific framework and implementation plans consisting of content-based training, networking among the teachers, and the utilization of physical and intellectual resources in the college campus. The simple representation of CPD is given in Figure 1.
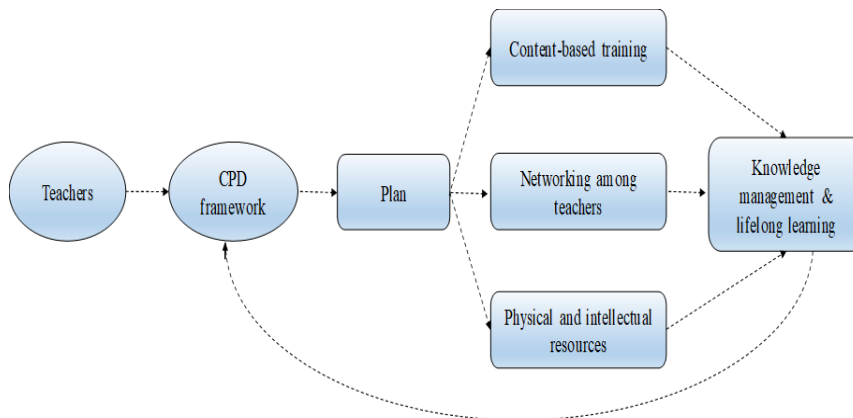
Figure 1: The framework of CPD practice

Within the boundaries of any educational institution, knowledge management integrates physical and intellectual resources, teacher networking, and content-based training (Mpungose, 2020). In-house CPD training and knowledge management follow a specific framework. The basis (teaching skill), engagement (improved skill through practical experience and professional development), integration (high level of competence), and specialization (teacher as a source of expert opinion) are all part of the CPD framework (de Alwis Jayasuriya et al., 2021). The main components of CPD include content-based training, networking among teachers, and available physical and intellectual resources (Dymock & Tyler, 2018; Kwofie et al., 2018). The performance of CPD depends on the perfect coordination of these components. Inadequate resources like facilities for online technology, e-learning platforms, bibliographic databases, logistic support, and infrastructural facilities, along with narrow networking and unwillingness to participate in training may hamper CPD practices (MacWalter et al., 2016).

Teachers may meet on a regular basis to plan CPD-related in-house training, workshops, demonstrations, and tutorials. They make a strategy to conduct such a type of training session with the help of the college administration. All teachers can build a network among them to initiate a CPD program at any college computer lab, English learning center, teachers' meeting room, or any classroom. They can also run CPD-related training by virtual meeting or webinar.

4. Methods
4.1 Ethics statement
Our study was accomplished in line with the guidelines of the Declaration of Helsinki in 1964. The Government Edward College Ethics Committee approved our study (Memo No. 133, Dated: January 2, 2021). After the survey aims and procedure were explained, all respondents gave their informed oral consent. The participants were told that their

participation was entirely voluntary, that they would not be identified in any subsequent presentations or publications deriving from the study, that their responses would be kept private, and that they could withdraw from the survey at any moment. We assigned each respondent's data a unique ID code to safeguard data confidentiality and protect respondents' anonymity. The information was password-protected and saved in several locations.

4.2 Participation

This study was carried out in a few government colleges in the Pabna district. Non-government colleges were excluded in the study because their faculty members had no in-house or in-service training experience. Out of five government colleges, three colleges (such as Government Edward College, Government Mohila (Women) College, and Shaheed Bulbul Government College) were selected for online-based surveys using a multistage cluster sampling technique. 217 teachers in these colleges are currently working as lecturers, assistant professors, associate professors, and professors in different departments. A large number of teachers have in-service training experience rather than in-house training. Thus, the samples were drawn from these three colleges in the months of January to February, 2021. Among 217 teachers, we enabled sending e-mails to 63 teachers because of their active participation in e-mail and valid e-mail IDs. 13 respondents from Edward College, 11 respondents from Government Mohila College, and 13 respondents from Shaheed Bulbul Government College provided responses via returned e-mail. A concurrent mixed method evaluation was used to carry out this research.

Table 1: Characteristics of respondents (n=37)

Characteristics	Number	Percentage
Age, mean (SD), range	42.89 (3.70)	30–58
Gender		
Male	29	78.38
Female	8	21.62
Educational Attainment		
PhD	2	5.41
Masters	35	94.59
Training Experience		
In–house	5	13.52
In–service	32	86.48
Effectiveness of CPD		
through in–house training	26	70.27
through in–service training	11	29.73

*Note. Data are presented as number and percentage of respondents unless otherwise indicated.

E-mail IDs were collected from the record books of our selected colleges. With the assistance of the college authorities of each participating college and using the chain's electronic mail (e-mail) service, a close-ended questionnaire (eight survey questions related

to action research with the assistance of experienced teachers, experience sharing, continuous coaching practice, mentoring practice, use of online technology in the classroom, assisting to design lesson plans, formative assessment technique, and peer observation and evaluation of class performance by other teachers) in Google Form about respondents' perception of in-house training for CPD. Regular fortnightly e-mails were also sent out to respondents to remind them of the questionnaire. Movement restrictions in the COVID-19 pandemic restricted us from conducting surveys physically. Table 1 outlines the characteristics of respondents.

4.3 Procedures and measures
The popularity of CPD among teachers at college level is a principal issue for policy makers in the education sector. Policymakers need to consider such determinants that influence college teachers' demand for CPD. The following is a summary of the data from observational studies of the essential characteristics of CPD: action research, experience sharing, coaching, mentoring, peer observation and evaluation of the activities of other teachers; helping to design effective lesson plans; providing assessment techniques; developing situations of interdependency; developing a collective sense of events in the workplace; and developing mutual engagement and respect (Allen et al., 2021; Davey & Egan, 2021; Filipe et al., 2018; Srinivasacharlu, 2019; Tannehill et al., 2021; Maleyrot, 2020; Kennedy, 2006). These studies suggest that among all the attributes, the first eight attributes should be prioritized for designing the in-house CPD training. All the attributes were figured out by categorical dummies. More specifically, all of the respondents were asked how much they agreed with each of the attributes on a scale from 1 to 5 (1 being "not at all" and 5 being "a great deal"), while gender, educational attainment, and in-house training experience were figured out by a dichotomous dummy variable (Male = 1 and Female = 0), (PhD = 1 and Masters = 0), and (In-house training experience = 1, In-service training experience = 0). In addition, age, and teaching experience were figured out by continuous variables. Perception of CPD was measured as the outcome variable (Effectiveness of CPD through in-house training = 1 and 0 = Effectiveness of CPD through in-service training).

A descriptive analysis was conducted to characterize our sample and determine the feasibility of in-house training instead of in-service training for proper CPD. Respondents' perceptions of CPD and its related attributes were measured based on survey responses. Scores given by respondents are significantly different from a normal distribution because of lower *p*-values for our proposed attributes for CPD in the Shapiro–Wilk test. The non-normal characteristics of our collected data motivated us to apply the Mann–Whitney U test rather than the traditional parametric test. This method was applied to determine whether there was a difference between the effectiveness of in-service training and in-house training. Responses from respondents were significantly different on all of our proposed eight attributes at 1%, 5%, and 10% levels.

5. Results and discussion

Of the 63 e-mails, 37 (58.73%) respondents sent their responses via e-mail. We did not get responses from 26 (41.27%) teachers because of their infrequent e-mail checking habit. The average age of our targeted sample is recorded at 43 years old, where 22% of teachers are over 50 years old, 78.38% of teachers are male, 21.62% are female, and about 5.41% have a PhD degree, and the rest of 94.59% have a master's degree. About 13.52% of respondents have in–house training experience consisting of computers and English speaking on their college campus, and the rest of the 86.48% of respondents have in–service training services. A certain number of newly recruited teachers have no in–service training experience like the Foundation Training Course, Office Management Course, Financial Management Course and others conducted by the National Academy for Educational Management (NAEM) or similar government–owned training institutions. About 70.27% of respondents argued that CPD can be developed by regular in–house training, whereas 29.73% of respondents believed that CPD can be developed by in–service training practice. Whole results of Shapiro–Wilk test, Mann–Whitney U test and Chi–square test are presented in Table 2. The Shapiro–Wilk test was used to assess the normality test of our collected data, the Mann–Whitney test was used to assess the impacts of our proposed attributes and the Chi–square test was used to differentiate in–house CPD training and in–service training.

Table 2: Estimation results of Shapiro–Wilk, Mann–Whitney U and Chi–square tests

Attribute	Shapiro–Wilk	P–value	Mann–Whitney	P–value
Action research	0.162*	0.000	0.907*	0.000
Experience sharing	0.223*	0.000	0.931**	0.024
Coaching practice	0.210*	0.000	0.887*	0.001
Mentoring practice	0.233*	0.000	0.951***	0.057
Online technology	0.219*	0.000	0.881***	0.078
Design of lesson plan	0.221*	0.000	0.947*	0.007
Formative assessment	0.236*	0.000	0.901**	0.002
Peer observation	0.209*	0.000	0.934	0.214

†Estimated based on collected data using SPSS statistics 26.
‡ *, **, *** indicates 1%, 5% and 10% level of significance.

The Shapiro-Wilk test reveals that scores for all of our proposed attributes given by teachers were significantly different from a normal distribution because of the lower ($p<0.001$) threshold for our proposed attributes of CPD. The non-normal characteristics of our collected data motivated us to use the Mann-Whitney U test rather than the parametric test. This test is used to determine whether there was a difference between the effectiveness of in-house CPD and in-service training. Our seven proposed attributes are significant at 1%, 5%, and 10% levels. Estimated value of action research is recorded at (U=0.907, p=0.000), experience sharing is recorded at (U=0.931, p=0.024), coaching practice is measured at (U=0.887, p=0.001), mentoring practice is measured at (U=0.951, p=0.057), use of online technology in the classroom (U= 0.881, p = 0.078), and assisting in the design of an effective

lesson plan (U=0.947, p=0.007) and formative assessment is recorded at (U=0.901, p=0.002). Except for peer observation and evaluation of class activities by other teacher(s) is recorded at (U=0.934, p=0.214). In addition, we applied a Chi-square test to assess differences in effectiveness of CPD based on dichotomized responses (5 points scale) and found significant difference between in–house and in–service based CPD. Our study's major findings are consistent with previous empirical studies conducted by Hanfstingl et al. (2020), Friedman and Phillips (2004), Kovalchuck and Vorotnykova (2017), Allen et al. (2021), Tannehill et al. (2021), Utami et al. (2019), and Shernoff et al. (2017). For instance, Hanfstingl et al. (2020) reported that experience sharing is essential catalyst for executing in–house CPD training. Tannehill et al. (2021) argued that coaching practice plays a significant role for running proper CPD. Few teachers feel discomfort on monitoring, peer observation and evaluation of class activities because of a matter of privacy. Female and senior teachers feel discomfort to participate in–service training at different venue with long duration because of engagement in family activities. These may be the potential causes of insignificance in peer observation and evaluation of class activities of by other teacher(s) and effectiveness of CPD through in–service training. This finding is consistent with the study of Korucu Kis and Kartal (2019).

In–house training CPD is not only suitable for lifelong learning, but also for developing quality education. Most of our respondents accepted and appreciated the concept of in–house CPD training, and preferred immediate implementation of such training practice at their colleges. Our findings showed essential components of CPD–related training. The CPD facilitated in–house training at any time. This training format enabled to meet training requirement essential for teaching and knowledge management. In addition, in–house CPD training format is essential for college teachers especially for female and senior college teachers who feel discomfort to participate in–service training at different venue with long duration because of home sickness, phobia of mass gathering with other trainees, time management, and food and accommodation problems. Hence, in–house training CPD training appears to be highly desirable and sustainable for lifelong learning.

It may be noted here that this study has a few limitations, which may reduce the merits of the study. For instance, this study fails to conduct key informant interviews (KII) and focus group discussions (FGD) with sample respondents to obtain the most essential attributes of in–house training CPD training. This study also failed to conduct a pre–test to check the validity and reliability of the proposed attributes. The sample size of this study was very small, which narrowed the ability to detect significant effects of in–house CPD training. These areas merit future study. Despite this shortcoming, this study proposes a few attributes essential for designing CPD that will facilitate to examining the feasibility, validity, reliability, and acceptability of in–house training for lifelong learning and capacity building.

6. Conclusion

The objective of CPD is to enhance professional expertise and competence, and the well-being of professionals, while it also increases the competitiveness and effectiveness of organizations. Although in-house CPD training is highly promoted through policies and programs in different organizations globally, it is an ambiguous notion in a developing country like Bangladesh. It is gaining popularity in many institutions because of its significant contribution to education, lifelong learning, and knowledge management. It has a large number of contextual and methodological challenges because of the heterogeneity of organizational and professional needs. Therefore, to make in-house CPD training more attractive, this study proposes a few attributes for the CPD framework and plans, such as strategy for designing action research, experience sharing with senior colleagues, coaching practice, mentoring practice, using online technology in the classroom, helping to design effective lesson plans, and formative assessment at college level. We apply the Mann-Whitney U test to elicit college teachers' perception and demand for in-house CPD training. The findings show that our proposed attributes for CPD have a significant impact on respondents' probability of acceptance of CPD for lifelong learning, knowledge management, and professional development. College authorities can arrange such in-house CPD training at regular intervals. However, the college authorities have to provide training facilities, computers and uninterrupted internet facilities, training rooms, and also encourage all teachers to participate in in-house CPD training. For proper implementation of in-house CPD training at the college level, the government should allocate a certain amount of budget annually.

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