

DEVELOPING THE FACTORS FOR CREATING PROFESSIONAL LEARNING COMMUNITIES IN BASIC EDUCATION HIGH SCHOOLS

Cherry Win Zaw¹, Thet Naing Oo², Zin Nwe Than³

Abstract

In 21st century, there has been increasing interest in professional learning community (PLC) because of its valuable effects on education not only in western context but also in eastern context. Teaching as a profession needs a team of collaborating in various functions together with, and developing countries are appropriate reasons to implement professional learning communities (PLCs) in schools as school-based professional development. In order to explore in-depth the concept of PLC in this context, the professional learning community model of Basic Education High Schools (BEHSs) was intended to study. Exploratory factor analysis was used to get the validity of the research findings. Questionnaires were developed based on thorough reviewing of literature related to PLC and PLC models of high education performing countries. A total of 610 teachers and 30 principals from 30 Basic Education High Schools in Mandalay City Development Area was selected as a sample through proportional stratified sampling method. Supportive and shared leadership, collaborative professional culture, deprivatized instructional practices, facilitative structure and relationship to teacher learning, and collective implementing to shared values and vision were found as factors of professional learning community by exploratory factor analysis.

Keywords: Professional Learning Community, Supportive and Shared Leadership, Collaborative Professional Culture, Deprivatized Instructional Practices, Facilitative Structure and Relationship to Teacher Learning, Collective Implementing to Shared Values and Vision

Introduction

Educators today face the difficult task of increased accountability for student learning of the 21st century with the context of rapidly changing society in various ways. In Myanmar's new national curriculum framework for basic education, it prescribed as one of the thirteen guiding principles of basic education curriculum. Therefore, principals and teachers must consider how to improve learning for all students to have 21st century skills by reculturing their school systems. Moreover, teacher is the heart of education system and the quality of teacher is the root of quality education. In the title of teacher, it already has many roles to perform and ethics to pay observance. Thus, the continuing professional development of teachers has received extensive international attention in endeavours to implement new and revised curricula, to improve the learning in schools within complex teaching environments and even to improve the overall performance of an education system (Darling-Hammond, Wei, Andree, Richardson, & Orphanos, 2009).

The concept of professional learning community began in western context. With public concern on education sparked by the 1983 report, *A Nation at Risk*, of the National Commission on Excellence in Education, American education was embarking on various attempts in school reform and teacher professionalization and teacher development are significant in United States (Underwood, 2007). The learning organization concept which introduced by Senge (1990), in the book of *The Fifth Discipline: The Art of Practice of Fine Learning Organization* which showed "when members of an organization learn, the entire organization learns". With announcing No Child Left Behind Act of 2001 that demands the needs of every child by meeting with schooling, educators are considering professional learning community as an option for school improvement

¹ Dr, Lecturer, Department of Educational Theory, Sagaing University of Education

² Dr, Professor, Department of Educational Theory, Yangon University of Education

³ Dr, Professor and Head of Department, Department of Educational Theory, Sagaing University of Education

because of its positive effects on school (Schmoker, 2004). Now this concept spread over the world and was found in practising among high education performing countries not only in Europe such as United States, Canada, British Colombia, etc. but also in Asia such as Hong Kong, Singapore, Thailand, etc.

Each of the words of “professional learning community” has their own meanings. Little (2002) stated that the word “professional” is a specialized and technical knowledge base, and a service-oriented member who meets client needs, having a strong collective identity to a practice; the word “learning” states working together towards a common understanding, and the word “community” refers to a group of individuals who shares a common mission, values, goals, and experiences to accomplish a task. The meaning of professional is very simple and imperfect according to Little. Therefore, the added meaning is that a professional must have a collective personality of expertise, autonomy, commitment and responsibility (Khin Zaw, 2001).

Research Objective

The objective of this study is to develop the factors for creating professional learning communities in Basic Education High Schools.

Research Question

This research explores the following question in order to explore professional learning community model of Basic Education High Schools.

- What are the factors for creating professional learning communities in Basic Education High Schools?

Definition of Key Term

Professional Learning Community: Professional learning community is a group of teachers who meet regularly as a team to identify essential and valuable materials in student learning, develop formative assessments, analyze current achievement level of students, set achievement goals, share teaching strategies, and then create lessons to improve upon status quo (DuFour, DuFour, Eaker, & Many, 2005).

Theoretical Framework

This research study will be led by the following theoretical framework. In this study, five dimensions of Shirley M. Hord (1997) will be used to investigate the professional learning community (PLC) because these are not only the most appropriate dimensions with the country’s context but also the most commonly used dimensions in PLC researches. These dimensions are supportive and shared leadership, collective creativity, shared values and vision, supportive conditions (physical conditions and people capacities) and shared personal practice. Moreover, it considered characteristics of DuFour’s, and Murphy and Licks’ models that shed light on understanding professional learning community. And then, the concepts of Vygotsky’s social development theory (1978) and adult learning theory of Knowles, Holton and Swanson (2005) are included in this study because PLC is a teacher collaborative learning community.

Supportive and Shared Leadership: Supportive and shared leadership offers the opportunity for shared decision-making and authority that is enhanced by supportive structural and relational conditions for success. In nurturing supportive and shared leadership, principals use consistently broad-based decision-making on most of the school’s issues; develop democratic conceptions and behaviours by taking into account all the teachers' opinions and advice in decision making;

organize teams according to grade and subject areas in making decisions; inform important information and decisions about schools and students to all teachers.

Collective Creativity: Collective creativity sets the stage for the professional learning community to be involved in shared practice that supports change and improvement for individuals and the organization. Teachers work collaboratively in sharing information, seeking new knowledge, skills and strategies by reflective dialogue in which teachers conduct conversations about students and teaching and learning, identifying related issues and problems, and apply what they learned together to their classroom.

Shared Values and Vision: Shared values and vision are demonstrated by a focus on student learning that is strengthened by the learning of the PLC. Sharing vision is a particular mental image of important things of an individual and an organization. Staff engagement in developing a shared vision, and using that vision as a guidepost in decision making about teaching and learning in the school are the essential features of PLC.

Supportive Conditions: Supportive conditions determine *where and when*, and *how* staff meet and work regularly together as a team to do learning, decision making, problem solving, and creative work that characterize a professional learning community. Two types of conditions are necessary for learning communities to function productively: the structural or physical conditions, and the relationship among people and people capacities.

Physical conditions involve discussion time and space to meet allocated to teachers as to facilitate collaborative works; balanced student: teacher ratio and teacher: classroom ratio; necessary financial resources, material and resource person for professional development; access to ICT technology as to get teaching materials; small size of the school and physical proximity of the staff to one another; effective flow of information among teachers; and clean, inviting and delightful school environment.

People capacities are positive, caring student-teacher-administrator relationship; teachers are not being penalized or fined for unpurposive mistakes; loving culture that is built on mutual trust, respect and support among colleagues at the school and district level; openness and honesty; and recognition and celebration in outstanding achievements inside and outside school.

Shared Personal Practice: Reviewing and observing teachers' behaviours with each other is the norm of professional learning community. This process is "peers helping peers" process and it is important not to be evaluative manner. Such review must be conducted regularly by teachers who visit each other's classrooms to observe, script notes, and discuss and feedback observations with each other to increase individual and organizational capacity.

Review of Related Literature

Literature review includes definitions, characteristics and some models of PLC that laid down the foundation for the problem statement and the research procedure.

Definitions of Professional Learning Community

Professional learning community (PLC) is defined differently in diversified contexts by many researchers. This concept of PLC started as learning organization developed by Senge (1990) in business sector and later used it in education field. Senge defined PLC as organizations where people continually expand their capacity to create the results they truly desire, where new and expansive patterns of thinking are nurtured, where collective aspiration is set free, and where people are continually learning to see the whole together.

Further, Hord (1997) referred to a professional learning community as a group of teachers, administrators, and staff in a school who continuously pursue and share learning and act on their learning. As the goal of PLC is to enhance their effectiveness as professionals for improving students' achievement, it was also termed as communities of continuous inquiry and improvement. She developed the attributes of PLC including (a) supportive and shared leadership, (b) collective creativity, (c) shared values and vision, (d) supportive conditions: physical conditions and people capacities, and (e) shared personal practice.

Moreover, Du Four and Eaker (1998) defined a PLC as an environment of educators that fosters mutual cooperation, emotional support, and personal growth seeks to work together in order to get unaccomplished vision alone.

Speck (1999, as cited in Sai & Siraj, 2015) explained that the school learning community is a continuous procedure of collaborative interactions among teachers, students, leaders, staff, parents by conversating to develop learning and life in school.

Stoll, Bolam, McMahan, Wallace, and Thomas (2006) identified PLC that is a group of people sharing and critically probing their practices in an ongoing, reflective, collaborative, inclusive, learning-oriented, growth-promoting way and operating as a collective activity.

Characteristics of Professional Learning Community

The literature reveals different characteristics of professional learning community. Newmann (1996) described five essential characteristics of PLCs: shared values and norms; clear and consistent focus on student learning; reflective dialogue; deprivatizing practice to make teaching public; and focusing on collaboration.

DuFour and Eaker (1998) described in detail a set of six characteristics that illustrate the process of professional learning communities. These characteristics are as follows:

- Shared mission, vision, and values
- Collective inquiry into best practices and current reality
- Collaborative teams focused on learning
- Action orientation and experimentation
- Commitment to continuous improvement
- Results orientation

Stoll, Bolam, McMahan, Wallace and Thomas (2006) identified five key characteristics which are intertwined and operating together. These are—

- Shared values and vision – having a shared of vision and sense of purpose and undeviatingly focus on students' learning
- Collective responsibility – share responsibility for student learning in order to sustain commitment and accountability
- Reflective professional inquiry – reflective dialogue on important educational issues, deprivatization of practice through mutual observation
- Collaboration – work collaboratively to improve feelings of interdependence among members of the school
- Group, as well as individual, learning is promoted – collective learning through interactive knowledge creation and active engagement in dialogue

Other three aspects are considered as important characteristics: mutual trust, respect and support among staff members; inclusive membership – the community extending beyond teachers

and school leaders to support staff, and it being a school-wide community rather than smaller groups of people; and openness, networks and partnerships.

Vescio, Ross, and Adams (2008) noted that the most successful PLCs shared four common characteristics: open collaboration of teachers, a focus on student learning, teacher authority and governance, and continuous teacher learning to accomplish goals.

Some Models of Professional Learning Community

DuFour's Model

DuFour emphasizes how important the word professional is in the word Professional Learning Community at Work model. "A professional is someone with expertise in a specialized field, an individual who has not only pursued advanced training to enter the field, but who is also expected to remain current in its evolving knowledge base" (DuFour & Eaker, 1998, pp. xi-xii). The Professional Learning Community Model requires extensive training, expectations to remain current, to learn continuously, and to put the needs of students first.

According to DuFour's views, as an organization, the foundation of professional learning communities is the development of teachers' cooperative work which focuses on improving the abilities of dealing with complicated work of teachers although helping students narrows the gaps of learning to achieve their learning goals. DuFour (2004) argues that the PLC should pay more attention to learning not teaching, cooperative working only to get individuals' achievements.

During the PLC meetings, educators focus on four essential questions at the core of all effective PLCs:

- What is it we want our students to know?
- How will we know if our students are learning?
- How will we respond when our students do not learn?
- How will we enrich and extend the learning for students who are proficient?

According to DuFour model, there are "three big ideas" that exemplify the fundamental principles of PLCs: (1) Ensuring that Students Learn, (2) A Culture of Collaboration, and (3) A Focus on Results (DuFour, 2004). The focus of the PLCs is bringing teachers together to build a community within the school that will encourage all personnel (students, teachers, staff and administration) and challenge them to thrive in all learning situations.

Hord's Model

Hord (1997) elaborated five attributes of PLC for organizational effectiveness. The first attribute is supportive and shared leadership, which requires school leaders to give teachers greater decision-making power, builds them leadership capacity and creates atmosphere and climate that promotes community empowerment practices to all PLC members. The second attribute, collective creativity, allows collaborative relationships in the school community focused on improving the effectiveness of information delivery and discussing methods and strategies to overcome instructional issues. The third attribute of PLC is shared values and vision: this attribute refers to the learning community to show their shared values, goals, mission and vision among its members. This can be seen through daily practices and are embedded in a PLC. Missions and vision are transparent to all. Established missions and vision focus on improvement in student achievement and student learning. The fourth attribute deals with supportive conditions: the physical or structural conditions and the human capacities of the people involved. The final attribute is shared personal practice, that is more concerned about the process that encourages teachers to interact, provide feedback and share the results of student learning experiences. It involves research-based

models of schools and classrooms such as action research, coaching, creating a mentor-mentee system and do joint decision making.

Murphy and Lick's Model

The Whole-Faculty Study Groups (WFSG) model draws from Senge's (1990) learning organization theory and is grounded in what is known about collaborative learning (Murphy & Lick, 2005). Initially created and implemented as a staff development model for the school system, WFSG is a framework for implementing changes in curriculum, instruction, and classroom assessment in the school. It links or connects professional development on curriculum, instruction, and classroom assessment to collaborative teams of teachers working together to apply their new learning to the student needs they are addressing through their study group action plans.

“Whole-Faculty” means that every faculty member at the school is a member as a study group focusing on data-based student instructional needs. In such a context, a study group is a small number of individuals, three to five joining together to increase their capacities to enable students to reach higher levels of performance. The collective synergy of all the study groups advances the whole school. The goal of WFSGs is to focus the entire school faculty on creating, implementing, and integrating effective teaching and learning practices into school programs that will result in an increase in student learning and a decrease in negative behaviours of students.

The WFSG process is a step-by-step practical methodology for the development of study groups in schools to facilitate school-wide change and enhance learning processes and outcomes. There are five guiding principles for WFSG:

- Students are first
- Everyone participates
- Leadership is shared
- Responsibility is equal
- The work is public

Methodology

Population and Sample

The population included all principals and teachers from the Basic Education High Schools (BEHSs) in Mandalay City Development Area (MCDA). The sample of this study was 30 principals and 610 teachers from 30 BEHSs in MCDA, that was selected by using proportional stratified sampling based on teacher's position.

Instrumentation

The instruments used for data collection were two questionnaires: professional learning community questionnaire for principals (Questionnaire 1) and professional learning community questionnaire for teachers (Questionnaire 2). Two questionnaires included two parts: the first part for respondents' demographic data and the second part for the investigation of perceptions of importance of professional learning community practices.

Data Collection Procedure

As the scope of this study was located in Mandalay City Development Area (MCDA), the researcher took permission from the Deputy Director General (Education) of Mandalay Region. And then, the researcher sought and obtained background information of schools in MCDA from

Regional Office in order to select sample schools. After preparing necessary data and condition, questionnaires were distributed to participants on 2nd July 2019, along with a cover letter introducing and explaining the purpose of the study and highlighting the confidentiality of participants and their responses. Finally, completed questionnaires were collected after one week.

Data Analysis

The data were systematically analyzed using the Statistical Package for the Social Studies (SPSS) Software version 23. The data were analysed using factor analysis and descriptive statistics.

Findings

There were three aspects that needed to be examined the appropriateness of the data for factor analysis. The three aspects were sample size, factorability of the correlation matrix, and the Kaiser-Meyer-Olkin (KMO) Measure of Sampling Adequacy and Bartlett's Test of Sphericity. For sample size, Comrey and Lee (1992, as cited in Pearson & Mundform, 2010) suggested to the sample sizes: 100 as poor, 200 as fair, 300 as good, 500 as very good, and 1000 or more as excellent for a factor analysis to return reliable factors. Ho (2014) suggested that the number of sample size would be more acceptable of 10 times the number of variables and other rule of thumb is five times. Based on these arguments about determining the suitability of sample size for factor analysis, a sample size of 640 respondents was involved in this study, providing a ratio of over 10 cases per variable. Inspection of the Correlation Matrix showed evidence of many correlation $r=.3$ or greater.

For measure of sampling adequacy or whether data could factor well, Hair, Black, Babin, and Anderson (2014) suggested that if the Kaiser-Meyer-Olkin (KMO) was greater than 0.6 and the Bartlett's Test of Sphericity (BTS) must be significant at $p < .05$ then factorability of the correlation matrix was assumed. The KMO measure of sampling adequacy yielded a value of 0.98, indicating that the sample size was large enough to assess the factor structure. BTS was significant ($\chi^2(1770) = 35993.79, p=.000$), indicating that the variables were correlated highly enough to provide a reasonable basis for factor analysis (Tabachnick & Fidell, 2013). Besides, the results provided for all items had a communality that was above 0.3 (Tabachnick & Fidell, 2013). The communalities were determined for each item. The communalities of the items ranged from 0.43 to 0.74.

An exploratory factor analysis (EFA) was used to construct new factors affecting professional learning community practices. It was conducted on the 60 questionnaire items with principal axis factoring as the extraction technique and varimax rotation, using Statistical Package for Social Science (SPSS) version 23. EFA was an analysis of exploratory type and was used to identify the complex interrelationships among the variables, and group of these variables as part of unified concepts. This method helped the researcher to draw the main dimensions of the area of interest to derive a theory or a model from the reasonably large set of variables. The groups formed from interrelated variables were called factors. The distinctive feature of EFA was that the factors were derived from statistical results, not from theory (Hair et al., 2014).

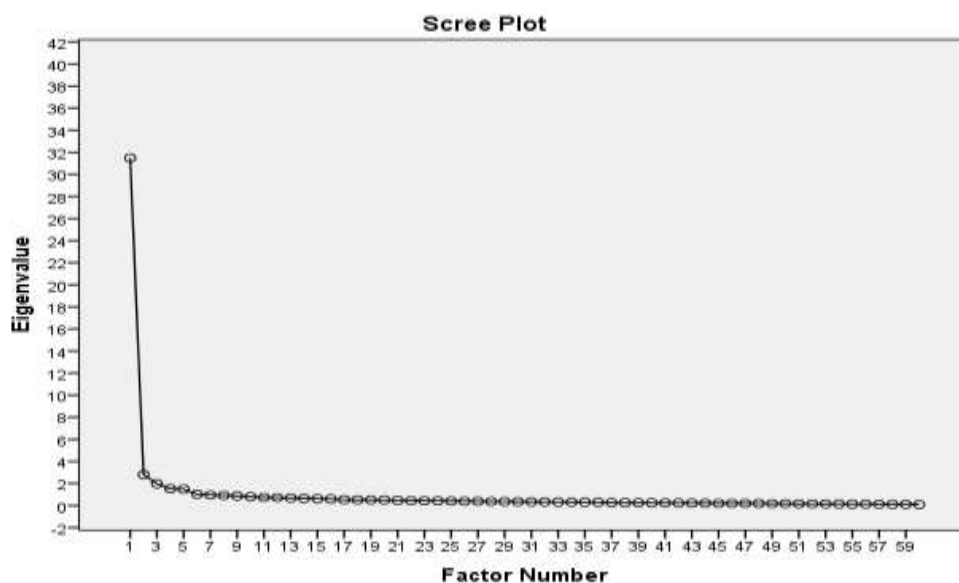
Various criteria were used to assist the factor extraction. The 'Kaiser's criteria' based on 'Eigenvalues', the 'Scree test', and the 'cumulative percentage of variance extracted' were the commonly used criteria for factor extraction (Williams, Brown, & Onsmann, 2010). Factors were extracted with the rules of Eigenvalues either greater than one or by fixing the number of factors to be a fixed one, based on prior expectations. Five factors had eigenvalues greater than 1.0, which was a common criterion for a factor to be useful. And then, cumulative percentages of variance were above 50%, ranging from 52.01% to 62.61% (See Table 1). The total variances explained in social science were acceptable for a minimum value from 50-60 percentages (Pett, Lackey, & Sullivan, 2003).

Table 1 Extraction Sums of Squared Loadings for Professional Learning Community Factors

Extraction Sums of Squared Loadings			
Factors	Eigenvalues	% of variance	Cumulative %
Factor (1)	31.21	52.01	52.01
Factor (2)	2.49	4.15	56.16
Factor (3)	1.59	2.65	58.82
Factor (4)	1.15	1.92	60.73
Factor (5)	1.13	1.88	62.61

Extraction method: Principal Axis Factoring

The Scree plots were the graphical representation of Scree tests by drawing a straight line through the smaller Eigenvalues, at which the above conditions were fixed. Figure 1 shows that the Scree plot flattens out after the five factors.

**Figure 1** Scree Plot Showing Factors for Professional Learning Community Practices

Rotation Sums of Squared Loadings indicated that the presence of five factors exceeding 1, explaining 14.20%, 13.35%, 13.26%, 12.73% and 9.06% of the variance respectively (See Table 2). Based on the Rotated Factor Matrix, a total of sixty items were retained because they all passed minimum factor loading of 0.35 and above.

Table 2 Rotation Sums of Squared Loadings for Professional Learning Community Factors

Rotation Sums of Squared Loadings			
Factors	Eigenvalues	% of variance	Cumulative %
Factor (1)	8.52	14.20	14.20
Factor (2)	8.01	13.35	27.55
Factor (3)	7.96	13.26	40.82
Factor (4)	7.64	12.73	53.55
Factor (5)	5.44	9.06	62.61

Rotation Method: Varimax with Kaiser Normalization

The factors were generated, and attributed variables were examined to identify the common property to name the variables (Williams et al., 2010). The labelling of factors was a subjective, logical, and inductive process (Pett et al., 2003). The meaningfulness of latent factors was ultimately dependent on the logical definitions named by the researcher (Henson & Roberts, 2006).

Table 3 Factor Loadings for Exploratory Factor Analysis with Varimax Rotation of Professional Learning Community Practices

Variables	Factor Loadings					Communalities
	1	2	3	4	5	
Behaving proactively and facilitating as needed	.74					.66
Deciding and performing according to subject teams	.74					.67
Sharing equal responsibilities among teachers	.70					.68
Taking into account all teachers' opinions and advice in decision making	.69					.61
Consistent participation of teachers in decision making	.66					.55
Giving chance to make innovative changes	.66					.61
Informing important information and decisions to all teachers	.65					.53
Nurturing leadership abilities and assigning alternatively	.59					.52
Giving power and authority in line with responsibilities	.58					.54
Treating teachers with respect and as professionals	.53					.49
Focusing undeviatingly on student learning rather than teaching	.46					.56
Praising and recognizing teachers' triumphs	.41					.53
Pursuing for professional self-renewal	.40					.57
Having interdependency among colleagues		.63				.71
Applying what teachers learned together		.62				.74
Engaging actively in instructional seminars and workshops		.61				.72
Focusing more on effective teaching methods than finishing monthly course		.58				.62
Sharing successful teaching strategies		.58				.68
Discussing teaching strategies and contents with each other to improve teaching		.58				.66
Developing more capacity by working collaboratively		.57				.61
Taking help from experienced teachers and colleagues		.55				.64
Communicating openly and honestly		.50				.67
Supporting and helping each other to improve instruction		.50				.67
Supporting and helping each other to improve instruction		.50				.67
Doing inquiry activities together to reduce ability gap		.50				.61
Performing school activities based on mutual trust and respect		.48				.73
Pursuing teaching experiences from veteran teachers		.46				.53
Collaborating to develop shared sense of values and respect among teachers		.44				.59
Sharing collaboratively knowledge and experiences in groups			.76			.73
Giving constructive feedback on observations			.70			.71
Having opportunities to share knowledge individually			.65			.68
Observing others' teaching practices and taking notes			.64			.68
Allocating fixed time to professional learning			.62			.64
Sharing one's successes and failures in instructional practices to others			.62			.65
Mentoring for professional growth			.59			.64
Reserving places or rooms to professional learning			.59			.60

Table 3 Factor Loadings for Exploratory Factor Analysis with Varimax Rotation of Professional Learning Community Practices (continued)

Variables	Factor Loadings					Communalities
	1	2	3	4	5	
Holding regularly subject meeting once a week			.55			.56
Guiding correct ways, not evaluative judgements			.53			.59
Informing procedures and guidelines in time				.68		.79
Getting access to ICT technology and teaching aids				.66		.67
Supporting necessary resources for teacher competencies				.63		.63
Cooperating on school activities not discriminating between roles				.62		.72
Balancing teacher-student ratio and teacher-classroom ratio				.59		.58
Collaborating with each other in implementing established school policies				.56		.71
Having positive and caring student-teacher-administrator relationship				.53		.65
Allowing teachers' opinions and advice to principal				.52		.61
Having community support and participation				.52		.61
Seeking a good infrastructure and conducive school environment				.51		.66
Recognizing and celebrating in outstanding achievements				.50		.55
Getting appropriate training programs for capacity building of the administrators and teachers				.47		.55
Neglecting unpurposive mistakes among teachers				.47		.65
Risk-taking to improve on status quo				.38		.43
Implementing short-term and long-term plans to achieve school vision					.64	.70
Setting up all school programs and procedures in line with school vision					.63	.67
Working collaboratively on the quality of teaching profession					.58	.63
Having high expectations on school and students					.58	.66
Aligning decisions about teaching and learning with school values and vision					.57	.68
Setting school's own mottos or vision with teachers					.53	.55
Supervising teaching and learning to improve student learning					.52	.62
Encouraging and helping teachers to create continuous learning environment					.50	.59
Having active involvement of parents and community					.39	.50
Eigenvalues	8.52	8.01	7.96	7.64	5.44	
% of variance	14.20	13.35	13.26	12.73	9.06	

Note. Loading <.35 are suppressed

Extraction method: Principal Axis Factoring

Rotation Method: Varimax with Kaiser Normalization

According to the results of EFA described in Table 3, Factor (1) measured leadership in professional learning community practices naming "Supportive and Shared Leadership" (SSL). There were 13 items: behaving proactively and facilitating as needed; deciding and performing according to subject teams; sharing equal responsibilities among teachers; taking into account all teachers' opinions and advice in decision making; consistent participation of teachers in decision making; giving chances to make innovative changes; informing important information and decisions to all teachers; nurturing leadership abilities and assigning alternatively; giving power and authority in line with responsibilities; treating teachers with respect and as professionals;

focusing undeviatingly on student learning rather than teaching; praising and recognizing teachers' triumphs; and pursuing for professional self-renewal.

Factor (2) consisted of 14 items: having interdependency among colleagues; applying what teachers learned together; engaging actively in instructional seminars and workshops; focusing more on effective teaching methods than finishing monthly course; sharing successful teaching strategies; discussing teaching strategies and contents with each other to improve teaching; developing more capacity by working collaboratively; taking help from experienced teachers and colleagues; communicating openly and honestly; supporting and helping each other to improve instruction; doing inquiry activities together to reduce ability gap; performing school activities based on mutual trust and respect; pursuing teaching experiences from veteran teachers; and collaborating to develop shared sense of values and respect among teachers that were labelled as "Collaborative Professional Culture" (CPC).

Factor (3) was loaded with 10 items: sharing collaboratively knowledge and experiences in groups; giving constructive feedback on observations; having opportunities to share knowledge individually; observing others' teaching practices and taking notes; allocating fixed time to professional learning; sharing one's successes and failures in instructional practices to others; mentoring for professional growth; reserving places or rooms to professional learning; holding regularly subject meeting once a week; and guiding correct ways, not evaluative judgements that were labelled as "Deprivatized Instructional Practices" (DIP).

Fourteen items that loaded into Factor (4) were informing procedures and guidelines in time, getting access to ICT technology and teaching aids, supporting necessary resources for teaching competencies, cooperating on school activities not discriminating between roles, balancing teacher-student ratio and teacher-classroom ratio, collaborating with each other in implementing established school policies, having positive and caring student-teacher-administrator relationship, allowing teachers' opinions and advice to principal, having community support and participation, seeking a good infrastructure and conducive school environment, recognizing and celebrating in outstanding achievements, getting appropriate training programs for capacity building of the administrators and teachers, neglecting unpurposeful mistakes among teachers, and risk-taking to improve on status quo. This factor was labelled, "Facilitative Structure and Relationship to Teacher Learning" (FSRTL).

Factor (5) was made up of 9 items: implementing short-term and long-term plans to achieve school vision; setting up all school programs and procedures in line with school vision; working collaboratively on the quality of teaching profession; having high expectations on school and students; aligning decisions about teaching and learning with school values and vision; setting school's own mottos or vision with teachers; supervising teaching and learning to improve student learning; encouraging and helping teachers to create continuous learning environment; and having active involvement of parents and community that were mainly concerned with "Collective Implementing to Shared Values and Vision" (CISVV). The factor labels proposed by the researcher suited the extracted factors and were retained. Internal consistency for each of the scales was examined using Cronbach's alpha. The alphas were high (See Table 4).

Table 4 Descriptive Statistics for Factors Affecting Professional Learning Community Practices in Basic Education High Schools (N=640)

Factors	No. of Items	<i>M</i>	<i>SD</i>	Alpha
Supportive and Shared Leadership	13	3.60	.53	.94
Collaborative Professional Culture	14	3.61	.52	.96
Deprivatized Instructional Practices	10	3.46	.58	.94
Facilitative Structure and Relationship to Teacher Learning	14	3.57	.54	.96
Collective Implementing to Shared Values and Vision	9	3.58	.53	.93
PLC Practices	60	3.50	.48	.98

In naming the factors resulting from factor analysis, the researchers asked for check the reasonability of the names of factors and the meanings of items in each factor from expert and experienced educators of the Department of Educational Theory, Yangon University of Education and Sagaing University of Education. Some items were rewarded and revised, and the names of the factors were reviewed succinctly so that the appropriateness of the names of the factors and their related items were confirmed. After discussing with them, valuable and imaginative advice were got not only for the names of factors but also for this study. This PLC model had both construct validity by calculating factor analysis and content validity by examining with experts, so the validated factors for professional learning community model for Basic Education High Schools were specified as follows:

- (i) Supportive and Shared Leadership
- (ii) Collaborative Professional Culture
- (iii) Deprivatized Instructional Practices
- (iv) Facilitative Structure and Relationship to Teacher Learning
- (v) Collective Implementing to Shared Values and Vision

Conclusion and Discussion

Discussion

The objective of this study was to develop the factors for creating professional learning communities in Basic Education High Schools. Therefore, exploratory factor analysis, specifically Principal Axis Factoring (PAF), was used to investigate factors affecting professional learning community practices of teachers and principals. Analysis found five factors that represented each of interrelated variables. These five factors were supportive and shared leadership, collaborative professional culture, deprivatized instructional practices, facilitative structure and relationship to teacher learning, and collective implementing to shared values and vision. These factors resulted from the findings of exploratory factor analysis using principal axis factoring method based on the responses of teachers and principals on the importance level of professional learning community practices.

A composite scale for professional learning community was developed using all five factors explaining above 50%, ranging from 52.01% to 62.61%. Internal scale reliabilities for the five factors were generally excellent with all Cronbach alpha values higher than .90 and the alpha value of overall professional learning community practices is 0.98. The research findings have supported previous researchers such as Hord (1997) and Harris and Jones (2010) in affirming that shared and

supportive leadership, collective learning and its application, shared values and vision, supportive conditions, and shared personal practice are the attributes of PLCs.

Conclusion

Based on factor analysis results, the proposed professional learning community model for Basic Education High Schools was presented in Figure 2. *Supportive and shared leadership, collaborative professional culture, deprivatized instructional practices, facilitative structure and relationship to teacher learning, and collective implementing to shared values and vision* were the main factors for creating professional learning communities in Basic Education High Schools.

Supportive and Shared Leadership refers to that school administrators support and encourage leadership and continuous learning, share leadership, power and authority democratically with teachers, and make a concerted effort to nurture authentic teacher leadership.

Collaborative Professional Culture means that school administrators and teachers work together within and between content areas, and grade levels to share information, plan collaboratively, and improve student learning opportunities in the school.

Deprivatized Instructional Practices mean that teachers observe teaching and professional behaviours with each other, and review and give constructive feedback in a non-evaluative manner.

Facilitative Structure and Relationship to Teacher Learning mean that having structure which supports appropriate conditions (exact time and space) and creates professional culture to consistently hold as a PLC, and warm relationship that strengthens mutual respect and trust among school administrators and teachers.

Collective Implementing to Shared Values and Vision refers to guiding behaviours of members as a whole that are a common vision and a total commitment of how to improve teaching and learning towards attaining shared values and vision.

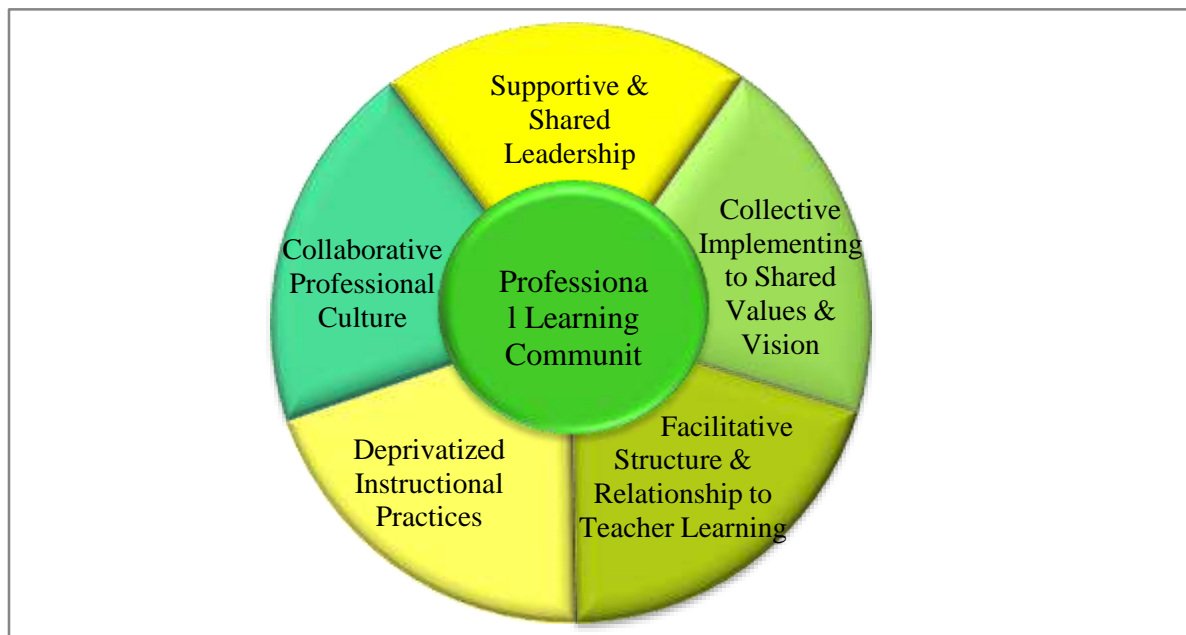


Figure 2 Proposed Professional Learning Community Model for Basic Education High Schools

Recommendations

A number of recommendations could be made for the improvement of professional learning community practices based on the findings:

- Educators and policy makers need to explore how to implement school-based PLCs for enhancing authenticity and quality of teacher engagement in it rather than increasing the frequency of holding it.
- Educational policy makers must mentor and guide schools to focus on improving student achievement, and enhance teacher professionalism through increasing the professional status of teaching and providing teachers with greater opportunities for professional growth.
- School principals who are combining PLCs and faculty meetings are recommended not to combine PLCs and faculty meetings to provide and promote teacher professional development.
- School principals need to reinforce and lead in Boards of Studies and Continuous professional development as much as they can so that teachers can participate actively in it and commit running them effectively.
- Teachers have to change their traditional ways of teaching; they have a strong perception of themselves as professionals and behave and try well as such.
- Teachers have to work collaboratively to apply teaching strategies that promote student learning. In order to improve their classroom practices, teachers need to work together and organize learning teams in an ongoing manner.
- The community have to provide the needs of school as much as they can. To be effective schools, only school members can not able to do. Community support is the best facilitator to improve teacher morale and school achievement.

Acknowledgements

We would like to express our special thanks to Dr. Saw Pyone Naing (Rector, Sagaing University of Education), Dr. Myat Myat Thaw (Pro-Rector, Sagaing University of Education), Dr. Pyone Pyone Aung (Pro-Rector, Yangon University of Education), Dr. Kay Thwe Hlaing (Pro-Rector, Yangon University of Education), Dr. Khin Zaw (Retired Rector, Yangon University of Education) and Dr. Cho Cho Mar (Retired Pro-Rector, University for the Development of the National Races of the Union, UDNR) for their permission, advice and support throughout the study which have enabled us to carry out this research successfully.

References

- Darling-Hammond, L., Wei, R. C., Andree, A., Richardson, N., & Orphanos, S. (2009). *Professional learning in the learning profession: A status report on teacher development in the United States and abroad*. Dallas, TX: National Staff Development Council. Retrieved from <http://www.nsdc.org/news/NSDCstudy2009.pdf>
- DuFour, R. (2004). What is a 'professional learning community'? *Educational Leadership*, 61(8), 6-11. Retrieved from <http://www.ascd.org/publications/educational-leadership/may04/vol61/num08/What-Is-a-Professional-Learning-Community%20A2.aspx>
- DuFour, R., & Eaker, R. (1998). *Professional Learning Communities at Work: Best Practices for Enhancing Student Achievement*. Bloomington, IN: National Educational Service.
- DuFour, R., DuFour, R., Eaker, R., & Many, T. (2005). Recurring themes of professional learning communities and assumptions they challenge. In R. DuFour, R. Eaker, & R. DuFour (Eds.), *On common ground: The power of professional learning communities* (pp. 7-30). Bloomington, IN: National Educational Services.
- Hair, J. F., Black, W. C., Babin, B. J., & Anderson, R. E. (2014). *Multivariate data analysis: Pearson new international edition* (7th ed.). London: Edinburg Gate.

- Harris, A., & Jones, M. (2010). Professional learning communities and system improvement. *Improving Schools*, 13(2), 172-181. doi:10.1177/1365480210376487
- Henson, R., & Roberts, J. (2006). Use of exploratory factor analysis in published research: Common errors and some comment on improved practice. *Educational and Psychological Measurement*, 66, 393-416. doi:10.1177/0013164405282485
- Ho, R. (2014). *Handbook of univariate and multivariate data analysis with IBM SPSS* (2nd ed.). Boca Raton: CRC Press.
- Hord, S. M. (1997). *Professional learning communities: Communities of continuous inquiry and improvement*. Texas: Southwest Educational Development Laboratory.
- Khin Zaw, Dr. (2001). *Theoretical pedagogy (II)(Ethics)*. Yangon, Myanmar: Yangon University of Education.
- Knowles, M. S., Holton, E. F., & Swanson, R. A. (2005). *The adult learner: The definitive classic in adult education and human resource development* (6th ed.). Retrieved from http://www.ugcasru.org/index.php?option=com_phocadownload&view=category&download=8:the-adult-learner-a4-2&id=2:study-materials&Itemid=197
- Little, J. W. (2002). Professional community and the problem of high school reform. *International Journal of Educational Research*, 37(8), 693-714. doi:10.1016/S0883-0355(03)00066-1
- Murphy, C. U., & Lick, D. W. (2005). *Whole-faculty study groups: Creating professional learning communities that target student learning* (3rd ed.). Thousand Oaks, CA: Corwin Press.
- Newmann, F. M. (1996). *Authentic achievement: Restructuring schools for intellectual quality*. San Francisco: Jossey - Bass Publishers.
- Pearson, R. H., & Mundform, D. J. (2010). Recommended sample size for conducting exploratory factor analysis on dichotomous data. *Journal of Modern Applied Statistical Methods*, 9(2), article 5. Retrieved from <https://digitalcommons.wayne.edu/jmasm/vol9/iss2/5>
- Pett, M. A., Lackey, N. R., & Sullivan, J. J. (2003). *Making sense of factor analysis: The use of factor analysis for instrument development in health care research*. Thousand Oaks, CA: Sage.
- Sai, X., & Siraj, S. (2015). Professional learning community in education: Literature review. *The Online Journal of Quality in Higher Education*, 2(2), 43-56. Retrieved from <https://www.tojqih.net/journals/tojqih/articles/v02i02/v02i02-07.pdf>
- Schmoker, M. (2004). Tipping point: From feckless reform to substantive instructional improvement. *Phi Delta Kappan*, 85(6), 424-432. Retrieved from <http://mike.schmoker.com/tipping-point.html>
- Senge, P. M. (1990). *The fifth discipline: The art and practice of the learning organization*. New York, NY: Doubleday.
- Stoll, L., Bolam, R., McMahon, A., Wallace, M., & Thomas, S. (2006). Professional learning communities: A review of the literature. *Journal of Educational Change*, (7), 221-258. doi:10.1007/s10833-006-0001-8
- Tabachnick, B. G., & Fidell, L. S. (2013). *Using multivariate statistics* (6th ed.). Boston: Courier.
- Underwood, J. M. (2007). *Study of the implementation of a professional learning community in one middle school in Georgia* (Doctoral dissertation, Georgia Southern University). Retrieved from <https://www.mobt3ath.com/uplode/book/book-26281.pdf>
- Vescio, V., Ross, D., & Adams, A. (2008). A review of research on the impact of professional learning communities on teaching practice and student learning. *Teaching and Teacher Education*, 24, 80-91. doi:10.1016/j.tate.2007.01.004
- Vygotsky, L. S. (1978). *Mind and society: The development of higher mental processes*. Cambridge, MA: Harvard University Press.
- Williams, B., Brown, T., & Onsmann, A. (2010). Exploratory factor analysis: A five-step guide for novices. *Australasian Journal of Paramedicine*, 8(3), article 1. Retrieved from <http://ro.ecu.edu.au/jephec/vol8/iss3/1>