

BUILDING A FIRST CLASS TEACHING FORCE THROUGH CULTIVATING COMMUNITIES OF PRACTICE (CoP)

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ABSTRACT

At the Teachers' Day Rally 2006, Mr Lee Hsien Long, our Prime Minister, emphasized the need to "Build a First Class Teaching Force". The fourteen schools in Cluster North Four (N4) have responded to this call by cultivating Communities of Practice (CoP). The explicit aim of CoPs is to enable the Heads of Department to take ownership of their professional development by forming a community of people who share common interests and practices in order to build a pool of knowledge to address a set of issues. This CoP model is based on Wenger's conception of group dynamics (Wenger, Dermott & Synder, 2002). Dr David Hung, Head of Learning Technology, NIE, has been the Cluster's CoP consultant since 2005.

The N4 Programme Excellence Committee, which oversees the CoPs, uses an action research design, allowing the CoPs to evolve autonomously, on a multi-model approach. The CoPs have presented papers at the N4 Cluster Learning Symposium in 2005, MOE Excel Fest in 2006 and published a book entitled "Skools Alive!@ N4" in 2006.

Based on survey questionnaires, evaluation reports and bi-yearly reviews, the CoP leaders and members have indicated that they have gone beyond their sharing of tacit and explicit knowledge and skills to the prototyping of processes and subject area focuses. This shift from existing as Cluster Support Groups to that as CoPs has helped them become excellent teachers and leaders.

INTRODUCTION

In their pursuit for school improvement, school leaders believe that attention towards classroom teaching and student-centered learning is the main focus-point. Academics and researchers have backed this focus, and stressed that it is critical to have powerful and equitable instructions that enables all students to be developed in subject-matter knowledge and habits of mind and skills that will help them in their future educational or working situations. Quality students' learning is dependent on the professionals who design and deliver the curriculum. Therefore, emphasis for continuous professional training at all levels is paramount. (Knapp, Copland, Ford, McLaughlin, Milliken, Talbert, 2003).

In "*Leading for Learning Sourcebook*", the authors advocate that one of the ways that school leaders can advance powerful and equitable student learning is through building professional communities that value learning, and by nurturing professional working cultures that support continuous learning. The authors claimed that opportunities for continuous professional learning could take many forms but the most valuable is, in their opinion, interactions with other professionals who offer ideas for effective practice, provide feedback and suggestions for improvement, and give essential moral support. Having teacher communities, within a school or even district-wide (cluster schools) teacher communities, can be platforms for such professional interactions. Such is the concept of communities of practice.

The concept of a community of practice is the process of social learning that occurs when people of similar interest or subject area or problem come together over a period of time to share ideas, explore solutions, and/or develop innovations. Jean Lave and Etienne Wenger first used this term, community of practice, in 1991. Communities of Practice have evolved most recently as organizations grow in complexity, and have been associated with knowledge management, as people have started to see them as essential methods to develop social capital, cultivating new knowledge, stimulating innovation, or sharing implicit knowledge within an organization (Lesser, Storck, 2001). Lesser and Storck described communities of practice as group of people defined by the domain of skills and techniques, as opposed to just people with similar interest.

Another interesting concept that was suggested by Lesser and Storck, is that communities of practice is an engine for the development of social capital. Social capital that is being developed, or at least maintained, within the communities of practice, can be expressed in three dimensions:

- There must be a series of connections and interactions among the group, and they must see themselves to be a part of the network.
- There must be a sense of trust.
- They must have common interest or share a common understanding of issues facing their organisation.

Social capital, though difficult to quantify in terms of contribution to organisational value, are often hidden assets that leads to behaviour change. This behaviour change results in greater knowledge sharing, which translate to positively influence performance. Lesser and Storck,

through their interviews and research, have identified several positive influences of the development of social capital through communities of practice:

- **Decrease Learning Curve.** Communities foster relationships between the new and more experienced members, often creating mentor-mentee relationships that could be valuable for both parties. It is often also a useful vehicle for members to share narratives, through professional interactions, conferences, sharing sessions and training courses that are often used to transfer tacit knowledge.
- **Reduce rework and prevent “reinventing the wheel”.** Lesser and Storck believes that this is the most valuable contribution from the communities of practice. It allows members to easily reuse existing knowledge assets.
- **Increase innovation.** Communities of practice can be a powerful breeding ground for innovation. It allows members a platform to share a variety of perspectives around common interest or topic.

BACKGROUND

The genesis of Communities of Practice could be traced to the meeting of the Vice-Principals with the then Superintendent of N4 in January 2004. Then, the concept of Communities of Practice was mooted and the possibility of regrouping cluster support groups by subject areas into Communities of Practices was explored. The underlying belief is that re-organization into Communities of Practice could facilitate the learning of the key personnel and deepen their professionalism. As a follow-up, the Community of Practice Steering Committee, (comprising of 12 members made up of a principals, vice-principals, Head of departments, representatives from ETD & NIE and an administrative manager) was formed in April 2004 specifically to formulate strategies for cultivating and facilitating Communities of Practice

(CoPs) and to come up with a framework that could be adopted for CoPs in the cluster context. The committee explored their understanding of the framework by discussion and dialogue with some practitioners. It was decided that the impetus of growth and professionalism will be self-directed and an evolving one, autonomously developed from the key personnel involved in the group. To experiment with this approach, two existing support group, Maths and the Mother Tongue Languages support groups were chosen and the concept of CoP was introduced to all their members. The feedback from the members then was positive. Encouraged by the response, the cluster proceeded to embrace the CoP structure for adoption in the beginning of 2005. This CoP structure continued from 2005 till present.

RESEARCH QUESTION

How do we “Build a First Class Teaching Force”, within the N4 Cluster Schools, through the concept of Communities of Practice?

METHODOLOGY

From the literature review of various researches and publications, the concept of using communities of practice to promote professional interactions, continuous professional learning, and the development of social capital which will translate into positive organisational value, may be essential for our N4 Cluster Schools in our pursuit to “Build a First Class Teaching Force”.

In 2004, Cluster Support Groups were the main focus in encouraging collaboration among the cluster schools. At the point of time, the Cluster Support Groups focused on organizing programmes that cater mainly to students. In contrast, there was inadequate focus on professional development of teachers.

In 2005 to 2006, the newly established N4 Programme Excellence Committee restructured the Cluster Support Groups to adopt the concept of Communities of Practice. The CoP model is based on Wenger’s conception of group dynamics (Wenger, Dermott & Synder, 2002). The N4 Programme Excellence Committee, which oversees the CoPs, uses an action research design, allowing the CoPs to evolve autonomously, on a multi-model approach.

In 2005, 13 CoPs were formed and they were given much autonomy to devise their own innovative programmes for both students and teachers. In 2006, through the review and suggestions of the CoPs, the N4 Programme Excellence Committee looked into providing more training for the CoP members, in the areas of Action Research, Curriculum Design, and Prototyping, to help them on their CoP journey. 17 CoPs were established in 2006. As the CoPs evolved in experience and maturity in terms of programme design, they were encouraged to come up with a Prototype, and/or adopt an Action Research concept for their CoP’s programmes. To showcase their programmes, the CoPs were highly encouraged to present their papers at symposiums and conferences and the committee also published a book entitled “Skools Alive!@ N4” in 2006. Table 1 presents the Time-Line for our N4 Cluster’s CoP journey.

Table 1: N4 Cluster Communities of Practice (CoP) Learning Journey Since 2004

Month/ Year	Event
2004	10 Cluster Support Groups (by subjects) led by N4 Cluster VPs
April 2004	Steering Committee for CoPs is formed to study how CoPs are evolved and to make recommendations for facilitating development of CoPs. Prototypes of evolving CoPs are Maths and MTL cluster support groups
Jan 2005	Formation of 13 CoPs led by HODs, an initiative by the newly established Programme Excellence Committee (PEC) 2005
Jun 2005	CoP Mid Year Review

Jul 2005	MOE Excel Fest 2005 with 1 Presentation
21 Nov 2005	N4 Cluster Learning Symposium held on 21 Nov at Seng Kang Pri Sch with 60 Papers presented by all 14 N4 Cluster Schools and 390 participants
25 Nov 2005	NZ Action Research Symposium with 6 Presentations
Jan 2006	Review and Implementation of Suggestions from various CoP leaders. A total of 17 CoPs was set up.
Jun 2006	CoP Mid Year Review
Jul 2006	MOE Excel Fest 2006 with 20 Presentations from our N4 Cluster Schools
Nov 2006	NZ Action Research Symposium with 11 Presentations
Nov 2006	Published Book SKOOLs Alive ! @ N4 with 45 articles from all 14 N4 Cluster Schools
Jan 2007	Review and Implementation of Suggestions from various CoP leaders. A total of 16 CoPs was set up.
May 2007	Presentation of 2 Research Papers by PEC at CRPP Conference 2007

The approach of the research is mainly through qualitative observations and findings. A variety of approaches based on observations and data collection are used. The approaches include analysis of surveys administered throughout the CoP journey, budgetting data, mid-year and year-end reviews.

RESULTS

Perception Survey

A survey was conducted in 2007 to find out the percentage of time that was spent on discussing and organizing (a) Programmes for Students, (b) Staff / Teachers Professional Development and (c) Administrative matters. The respondents were the CoP leaders of the 10 CSGs or CoPs that were in existence right through from 2004 to 2006. Survey results showed that compared to 2004, the time that was spent on Staff / Teachers Professional Development

in 2005 and 2006 had an increasing trend together with the time that was spent on Programmes for Students. At the same time, there was a decreasing trend in the amount of time spent on Administrative matters. It was significant and clear to all that the priority for all CGSs / CoPs from 2004 to 2005 had been on Staff / Teacher Development according to perceptions of the CoP leaders in this survey. Although there was an increase in the time spent on Staff / Teacher Professional Development in the period, the increment was not significant; from 43% in 2004 to 46% in 2005 and 44% in 2006.

Mean percentages of Time spent in the various categories of activities			
ALL Groups	2004 CSG	2005 CoP	2006 CoP
Programmes for students	20%	24%	28%
Staff / Teacher Professional Development	43%	46%	44%
Administrative Matters	37%	30%	28%
Total	100%	100%	100%

The finding showed that while there was a slight increase in the percentage of time spent on Staff / Teacher Development, it did not result in a decrease in the time spent on Programmes for students as propounded by the hypothesis. It is heartening to note that the key personnel were aware of the need to spend time on Staff Development and that it had been their first priority regardless of whether they were in CSGs or CoPs.

Study on Expenditure data

Simultaneously, a study on the expenditure data for the corresponding period 2004 to 2006 was made to find out the trend on the proportion of budget of the Cluster Support Groups or Communities of Practice that was spent on Staff / Teacher Development for the period.¹ The cluster expenditure data from 2004 to 2006 was obtained and analysed for testing the

hypothesis to check if it corroborated with the perception survey of the CoP leaders. Our hypothesis is that the percentage of spending on students' programme goes down while the percentage of expenditure on staff development goes up due to the nature and focus of the CoP.

Comparison of expenditure data in 2004 as compared with the data in 2005 and 2006 combined for the 10 CSGs/CoPs		
Trend of % of expenditure	Expenditure on Student Programmes	Expenditure on Staff Development
No of CSG/CoP with increasing %	2 (20%)	6 (60%)
No of CSG/CoP with same %	3 (30%)	2 (20%)
No of CSG/CoP with decreasing %	5 (50%)	2 (20%)

The summary data as shown above supported our hypothesis. Of the 10 CSG / CoP studied, 50% or 5 of the CSGs/CoPs had decreasing percentage of expenditure spent on Student Programmes between the two periods, 2004 in comparison with 2005 and 2006 together. At the same time 60% or 6 of the CSGs /CoPs experienced an increase in the percentage of expenditure spent on Staff Development. In addition, out of the 7 new CoPs formed in 2005 or 2006, 57% of the CoP or 4 CoPs had higher percentage of spending on staff development while 28.5% of the CoP or 2 CoPs had lower percentage of expenditure on staff development while 14.3% of the CoP or 1 CoP could not be used for comparison as it was set up only in 2006. The result is even more significant if we take into consideration that only 2 CSGs / CoPs out of the 10 surveyed bucked the trend of having increasing expenditure on programmes for students. Also it was commendable that 2 CoPs (Science Sec and Humanities Sec) had 100% of their expenditure expended on Staff Development.

Qualitative Survey

To further investigate into the extent of professionalism in the various CoPs, qualitative feedback was obtained from teachers or key personnel involved in the Communities of Practice to get their views on how CoPs had impacted on their professionalism. Out of 42 respondents, 78% agreed or strongly agreed that they had a good understanding of the Communities of Practice. This augurs well for the various learning communities in their journey of becoming CoPs in the past 2 years. In addition, 70% of the respondents agreed or strongly agreed that they had sufficient knowledge to work with the CoPs to formulate and design prototype while 80% of the respondents agreed or strongly agreed that they were able to guide teachers in their departments to carry out action research to improve teaching practices. On the other hand, there was scope for improvement in developing the professionalism of the CoPs in two areas: Understanding by Design as a Curriculum Design and Prototyping. 67% of the respondents disagreed or strongly disagreed that they were equipped with Understanding by Design as a Curriculum Design tool and were confident in using it to shape departmental practices. 65% of the respondents disagreed or strongly disagreed that they had good understanding of prototyping.

On Curriculum Design, the respondents would like to have more of these to support their professional growth:

- a) Training Courses / Workshops on Understanding by Design as a Curriculum Design
- b) Sharing by teachers on their Schemes of Work based on Understanding by Design
- c) Sharing on the prototypes using the Understanding by Design approach to curriculum design
- d) Provides hands-on sessions to teachers
- e) Provides examples in specific subjects.

On Prototyping, the respondents requested for more support as follows:

- a) Training / Seminars /Workshops on Prototyping
- b) Sharing of best practices regarding prototyping
- c) Hands-on sessions on prototyping
- d) Practical examples / samples of prototypes, for example written papers on prototypes.

Qualitative feedback from the Programme Excellence Group Survey showed that Curriculum Design and Prototyping were the two areas for developing professionalism for the CoPs from now on. The findings indicated that the priority and primary focus of the CoPs was Staff Development. The CoPs members requested for activities that would decrease their learning curve, reduce rework and prevent 'reinventing the wheel' and increase innovation as suggested by Lesser and Storck. In the journey of the CoPs towards greater professionalism, more than just-in-time instructions and hand-holding were necessary. It could be extrapolated that help from professionals outside of the CoPs could be increasingly difficult to come by, even though it would be expected that CoPs members wanted such professional help. It would be logical to expect that the CoPs might have to look within itself as it matured over time for resource persons who would further enhance their professionalism. Such learning is more relevant, authentic and aligned to experimentation and pioneering of new strategies, and techniques of pedagogy and management. Such a stage could come about over a much longer period of time, with more networking, sharing, reflection, learning and experimentation among the members. One could not draw conclusion from the two year period of experimentation with CoP framework as in the study.

DISCUSSION

What if there were no Communities of Practice and these Cluster Support Groups continue to exist as subject support groups? Our study led us to investigate into the activities of the Cluster Support Groups and their review findings in 2004. According to the Consolidated Cluster Support Group Meetings and Activities in 2004, it could be summarised as follow:

Total no of CSG meetings	25
Total no of CSG activities	38 of which 25% were for students and 75% were for teachers
Total no of student participants in CSG:	2,761 or 80.7% of all participants
Total no of teachers participants in CSG:	660 or 19.3% of all participants

The data showed that in the Cluster Support Group system, 75% of the activities were held for teachers while only 25% of the activities were held for students. However in terms of the number of participants, students dominated with 80.7% of participation as compared to teachers who constituted 19.3% of all participants.

In 2004, activities that could enhance professionalism are learning journeys to cluster schools, sharing of best practices at meetings, symposiums, attending workshops to learn from external professionals, and training on use of skills and professional discussion on setting, and vetting of examination papers.

For the period 2006, based on the CoPs reports on their meetings and activities, it could be summarised as follow:

Total no of CoP meetings	42
Total no of CoP activities	48 of which 16.66% are for students & 85.4% are for teachers
Total no of student participants in CoP:	354 or 33.71% of all participants
Total no of teachers participants in CoP:	696 or 66.29% of all participants

The data showed that in the Communities of Practice organizational structure, 85.4% of the activities were held for teachers while only 16.6% of the activities were held for students. In addition in terms of the number of participants, teachers dominated with 66.29% of all participants as compared with 33.71% of students who participated as a percentage of all participants.

In terms of expenditures, only 4 CoPs (23.52%) in 2006 had spent most of their funds on student programmes while the rest of the CoPs, 13 CoPs (76.48%) spent majority of their funds on staff development activities. In addition, 10 CoPs (58.82% of the CoPs) had 100% of their budget expended on staff development.

In fact many of the staff professional development activities incurred little or no cost at all except for refreshment items. Many of the CoPs had in-house sharing of best practices among members and generative conversations arising from these learning activities. Work attachment among cluster school or learning journeys to schools incurred transport and refreshment expenses that are relatively low in cost or which were self-financed by the staff or hosting schools. As such, it is invalid to use the amount expended as the basis for comparison of the CSGs and CoPs.

It was recommended that the framework Cluster Support Groups be changed to Communities of Practice in 2005. The Superintendent and Cluster accepted the recommendation and the CoPs were formed with its corresponding steering committee, the Programme Excellence Group.ⁱⁱ From our observation, the change in the framework of Cluster Support Groups to Communities of Practice in 2005 as proposed by the Review in 2004 was significant.ⁱⁱⁱ

Members of the CoP who were asked to comment at the end of 2005 on the statement ' CoP is **no** different from Cluster Support Group (CSG) in the past' had these to say:

- There is a difference in the sense that we don't organize competitions for pupils. Instead, we provide more training for teachers. Teachers in turn apply what they have learnt in class.
- The previous CSG does not provide a platform for close sharing compared with the CoP now. I feel closer to some of my members now because of collaboration for sharing at the Learning Symposium. We talk more and learn more from one another as compared to the previous CSG.
- In a way, it's the same. But the difference was the focus was on the teachers. (However, there was pressure to do something for the students).

The leadership of the Cluster Support Group was headed by principal/vice-principal while that of the Community of Practice was headed by Heads of Departments. When asked to comment, which was reflected in the 2005 review, on the change in leadership, it was clear that members of the CoPs preferred their peers to be in charge of the CoPs. In terms of professional growth, the qualitative feedback from members of the Community of Practice was also positive.^{IV}

The CoP leaders and members singled out staff development as the most important activity of the CoPs and agreed that they had grown in their personal capacity. Within each CoP, there were buy-in from the members and they understood that the CSG to CoP change is not a mere change in name but also a change in the substance. Correspondingly, the programmes and activities of the CoP revolved around the concept of deepening professionalism for these

CoPs. This is evident in the professional development courses organized by the Programme Excellence Group for the CoP members in 2005 and 2006.

- Action Research course by Dr Soh Kay Cheng in Feb & Mar 2005. This endeavour culminated in 12 papers been presented at the North Zone Action Research Symposium held at Xinmin Secondary on 25 Nov 2005.
- Designing and Evaluation the Curriculum by Dr Susan Adler from 6-8 June 2005
- Cluster Learning Symposium with Keynote address by Professor Allan Luke on 21 November 2005 where 60 papers were presented from the various CoPs.
- Another run of Action Research course by Dr Soh Kay Cheng from Jan to Apr 2006. Arising from this, 22 projects were submitted from the cluster for the North Zone Action Research Education Symposium of which 11 papers were selected for presentation.
- Curriculum Leadership by Dr Joy Chew and Dr Kelvin Tan from 10-11 May 2006
- Prototyping Experience Workshop conducted by IDEA Centre, Singapore Polytechnic for 13 cluster schools on 30 June 2006
- School-Based Curriculum Design Workshop conducted by Compassvale Secondary School for 23 participants on 14 Sep 2006.
- A compilation of 45 articles on innovative practices in Skools Alive@N4 as a celebration of cluster achievement and progress in teaching and learning.

To reiterate, under the CoP framework, there is greater focus of the various CoPs and their leaders on building their own capacity for instructional leadership and experimentation with innovative practices and pedagogies. Another difference is the impact of the Programme Excellence Group which sets the directions and focus, and determines the key performance outcomes of the CoPs and their effort in facilitating the professional development of the CoPs, and their members through organizing relevant workshops and programmes. In addition,

empowerment of the CoP leaders to take charge of their own growth and pace is yet another crucial difference between the cluster support group and community of practice frameworks.

LIMITATIONS OF STUDY

The main limitations of this study can be summarised as follow:

1. Lack of consistency in the survey respondents: The CoP leaders who were asked to evaluate the amount of time spent on programmes on students, staff development and administrative matters were not the same leaders who were with the CoPs throughout the 3 years period from 2004 to 2006. Also despite the explanatory notes, there could be a difference in the understanding and interpretation of the questionnaire which could account for their responses.
2. Different sources of data and inconsistent data. The data on expenditures obtained from cluster records on transactions^V of the various CoPs differ from the data reported by the CoP leaders. This could be due to the fact that the transaction records were end of year record as of Dec of the respective year while the reported expenditures given by the CoP leaders were given in the course of the year, as and when the reports were required / asked for. In addition, GST which is not commuted by the CoPs leader in their reports could account for the difference in amount when it was included in the invoices. Despite the difference in the data, the percentages calculated differ only slightly and it could not affect the overall result of the study and our conclusion.
3. Different treatment of the items. In this study, not only direct expenses such as workshop and training course for staff are classified as staff development expenses, refreshments for staff sharing session, transport cost relation to the learning journey and even resources or materials to for innovative pedagogy to be tested out

as a cluster are classified as staff development expenses. Similarly, transport for pupils, prizes for pupils and refreshment for pupils are treated as expenses on Programme for Students.

CONCLUION

Building a First Class Teaching Force is of paramount importance for Singapore's journey to be an education hub. The concept of Community of Practice had been tested out in North 4 cluster in the past two years and had yielded positive outcomes. With the Programme Excellence Group that provided steering of the direction of the CoPs, it had enhanced the professionalism of the teachers to go beyond sharing of tacit and explicit knowledge and skills to prototyping of processes and subject area focuses. This shift from existing Cluster Support Groups to that of CoPs has helped them become excellent teachers and leaders.

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APPENDICES

^I Expenditures for 2004, 2005 and 2006 were used as raw data to be converted for the purpose of this study into 2 main categories: (a) Programmes for Students, (b) Staff /Teacher Professional Development. Expenses that are administrative in nature have been included in either the student or staff categories.

^{II} Review Findings from Communities of Practice 2005

The Programme Excellence Group led by Mrs. Judina Cheong, P/Montfort Junior School and comprising 4 principals and 3 vice-principals, set out its terms of reference as follows:

- ✧ To promote each teacher to use the Spirit of Innovation and Enterprise (I&E) to create a classroom environment that emphasises “Teaching Less and Learning More”
- ✧ To facilitate each school to nurture Learner-Centered Excellence through the use of learner-centered approaches, e.g. SEED, SAIL, etc.
- ✧ To facilitate and help each school to propose an Innovation or new Instructional Programme based on Curriculum Re-design or Action Research for funding from the School Innovation Fund.

^{III} Review Findings from Cluster Support Groups in 2004

The main findings from the 2004 review of the Cluster Support Groups were as follow:

1. CSGs could be learning circles or Communities of Practice.
2. A new cluster framework for 2005 could be built based on the cluster themes of 2004 and the Learning Organisation philosophy of Quality Relationships → Quality Collective Thinking → Quality Planning → Quality Actions → Quality Results which is

cyclical in nature. This philosophy could function as a governing principle for all activities within the cluster.

3. The present cluster structure of 3 Learning Groups and various Cluster Support Groups could remain but be enhanced. An integrated approach with the Ps and VPs in charge of these groups forming a Steering Committee, and with the Cluster Superintendent as the Advisor to set the focus and direction for the cluster.
4. This Steering Committee could focus on the over-arching framework for the cluster's developmental programme, and function as the think-tank charting the cluster's directions. The Learning Groups and various Cluster Support Groups and other event-groups could then translate cluster goals and objectives into their various programmes and activities.

^{IV} In the 2005 review, members when asked “My COP is able to take more ownership in our professional growth” had these to say:

- ✧ The setting of the CoP enables us really focus on our professional area.
- ✧ We do take more ownership of my professional growth. We also have support from MOE.
- ✧ This year with the setting of CoP, the teachers are more focused with sharing for professional growth. There were exchanges of ideas on teaching and learning. I think it is great as most of the time, we are thinking about students' activities and neglect about teachers' professional areas.

^V The cluster expenditure data for Cluster N4 as of Dec 2004, 2005 and 2006 were categorized into 2 categories of Expenses for Programme for Students and Expenses for Staff / Teacher Development for computation and comparison.
