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Full Length Research Paper

Leadership maintenance: Filling the gap for leadership competences

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In this study, leadership maintenance employs psychological, sociological and physiological paradigms in creating a conducive environment for both leaders' and followers' well-being in educational settings. Leadership maintenance is an ongoing process, which entails the understanding of leader's cognitive complexity, relational approaches towards motivating their followership for generating leadership competences. This is maintained by understanding leaders' and their followers' psychological, sociological, and physiological state of mind. Open ended interviews were conducted to collect data from 30 participants during a training session organised by the Educational Leadership Institute at the University of Johannesburg. The participants were educationalists comprising principals, teachers, and students representatives from different educational sectors in the Gauteng Province of South Africa. Understanding the psychological, sociological and physiological paradigm for the wellness of leaders will inform leadership competences. This is achieved through understanding followership and the situational variables associated with it. Thus, wellness of followership is intimately related to the wellness of leadership and contributes to creating a harmonious organisational climate. The reciprocity of leadership actions towards followership leads to the reflectivity mirror effect. The actions of both leaders and followers that incorporate psychological, sociological and physiological state parameters results in reciprocity, which in turn determines leadership competences.

Keywords: Leadership maintenance, leadership competences, followership maintenance, mirror effect, psychological, sociological and physiological paradigm, leadership readiness, leader and follower wellness.

INTRODUCTION

The idea that leadership is always maintained is considered to be a misconception. The reason is that leaders need maintenance as do the human resources of all educational settings. Maintenance in human resources management is concerned with an employee's well-

being, safety, social security, and his/her relations for the purpose of establishing a harmonious organizational climate. In this study, leadership maintenance refers to a leader's psychological, sociological and physiological (PSP) well-being in order to enrich proactive reflective

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behaviour towards the accomplishment of situational readiness for effectiveness and a harmonious organisational climate. In order to consistently promote healthy and proactive behavioural, and attitudinal, commitment towards leadership readiness for flexibility and mobility, educational leaders must be in a state of readiness and willingness, while possessing the ability to act upon situational variations with intellectual spontaneity (Rajbhandari et al., 2014).

Leadership maintenance is an important ingredient for boosting, fostering and enhancing leadership competences. Leadership maintenance is psychological (i.e. a cognitive process), physiological (or being resourceful) and sociological (or understanding contextual variables and being relational to followers and followership). Hence, it is the ongoing process of maintaining organisational effectiveness. Leadership requires social well-being and social awareness. It creates a healthy social space through good communication with others with a view to seeking benefits from others and giving to them, in return, both considerate and initiative behavioural approaches to and from. Hence, followership is accomplished through the maintenance of leadership. Leadership maintenance is an essential tool for educational leaders in understanding immediate variables, such as teachers, students and educational policies, in order to act accordingly and sustain a good organisational climate (Rajbhandari, 2013). This contributes towards a healthy culture in educational settings where followers, such as teachers, and students, work together in an harmonious environment for the good of the institution (Tsai, 2011). Leadership maintenance enables school leaders to understand the situational behaviour and how it is applied. This also helps school leaders to demonstrate an appropriate leadership style.

Leadership maintenance in this study will discuss the psychological, sociological and physiological (PSP) parameters that affect the behaviour of educational leaders, and their leadership styles in educational settings, in an attempt to enrich leadership competences. PSP have macro-variables that impact on an organisation. These PSP parameters will be connected with a leader's micro-aspect. Many researchers and social scientists have tried to connect PSP parameters to the development of theories of motivation and leadership. For example, the hierarchy need theory of motivation hypothetically studies an individual's needs in five levels starting from the physiological need (Physiological and Safety needs), through social need (Social needs) and to psychological needs (Esteem and Self-Actualization needs) (Maslow, 1943). All of these parameters are hypothetically measured to verify the micro-aspect of an individual's level of motivation. Moreover, Alderfer (1969)'s ERG theory of motivation (Senyucel, 2009; Caulton, 2012) assume that an individual's level of motivation functions in a micro-aspect through the need for psycho-

logical growth, the sociological need for relations and the physiological need to exist. Similarly, PSP has been applied to understanding the motivational level of an individual, as in McGregor (1960), the X and Y theory (Herzberg et al., 1959) and two factor theories. Although motivation theories are subjected to content and process theory; in both of these; PSP has significantly contributed to the evaluation of an individual's performances.

In leadership, PSP has often been hypothesized as a sub-conscious parameter, starting with Thomas Carlyle's (1840) great men theory which evaluated leadership competences through "at the time of need" in an attempt to identify appropriate PSP parameters, which when applied would lead to leadership effectiveness. According to the traits and behaviour theory of leadership (Stogdill, 1948), PSP is significant because it sub-consciously connects a leaders traits and behaviours towards leadership effectiveness. This is revealed by hypothetically studying a leader's behaviour through relations-oriented behavior, which significantly contributes towards sociological and psychological parameters. Similarly physiological and psychological parameters sub-consciously contributed towards evaluating the task-oriented behavior of leaders.

Furthermore, in the contingent theory of leadership, PSP parameters are deemed to contribute sub-consciously towards leadership competences. In the situational leadership theory, four leadership approaches namely telling, selling, participating and delegating are sub-conscious parameters of PSP (Hersey and Blanchard, 1977). Similarly in the leader member-exchange theory, PSP contributes within the in-groups and out-groups members (Dansereau et al., 1975). Nevertheless, while it explores leadership maintenance, PSP is also sub-consciously contributing to leadership approaches, as reflected in the micro-variables of leaders that lead to the reciprocity effect. This effect is a reflexive image of leadership PSP, which can be controlled through leadership maintenance.

The purpose of this study is to explore and understand how educational leaders develop leadership maintenance through PSP parameters. That is, whether leadership maintenance is essential to educational leaders and if leadership maintenance is a practical phenomenon to enrich the gap through PSP parameters. However, two phenomena regarding leadership interests include are the emergence of leaders and assigning leaders. These can also be connected to the inherent and acquired quality of leadership. Moreover, in both cases, leadership maintenance is required and can be acquired through training, knowledge, experiences, cognitive intelligence, resourcefulness and socialization. Meanwhile, for the developmental purposes of these traits, all leaders require leadership maintenance, which enables them to enrich their potential competences to influence their followers for followership maintenance. Consequently,

this results in leadership readiness for flexibility and mobility, which fits into the situational context at different times and into readiness for different circumstances. This then helps leaders face the problems and consequences that are related to followers or any other contextual variations.

The study of leadership maintenance through the prism of the PSP paradigm, in order to facilitate leadership competences and effectiveness, seeks to answer the following research questions:

1. Why is leadership maintenance essential for educational leaders to enrich their competences?
2. How is leadership maintenance achieved by educational leaders?
3. How can leadership maintenance help educational leaders enrich the organisational environment of the leadership and followership paradigm?

LITERATURE REVIEW

Leadership maintenance is that process of maintaining leadership competences as and where required. It is essentially urgent and important. Leadership maintenance, therefore, enables school leader's readiness to remain flexible in applying appropriate leadership styles. Most leaders are successful because they understand themselves rather than understanding their environment. Leadership maintenance enables educational leaders not only to understand their surroundings, but also, to understand their own capabilities and to remain flexible while applying appropriate leadership styles to the demands of the context.

Context plays an important role in changes and development, which enables educational leaders to initiate leadership readiness for flexibility and mobility. The maintenance of appropriate leadership styles enables educational leadership to produce high flex movements in high flex contextual settings (Reddins, 1972). This promotes leadership effectiveness for the given time. However, if this reverses into an inappropriate leadership style, the high flex leadership style may not be able to cope with a low flex organisation, and vice-versa. Therefore, a high flex context requires a high flex leadership style with the appropriate readiness to stimulate leadership maintenance to cope with contextual parameters. Educational leadership is becoming more and more complex. Students are efficient in the use of modern technology, hence, their technological saviness demands that they are taught by teachers who possess a high level of spontaneity in order to provide quality education. This implies high flex follower's characteristics and features. This in turn requires high flex leaders.

Accordingly, leadership maintenance must adapt appropriately to the required competences that play a vital role in promoting situational leadership readiness.

Situational leadership readiness is a dynamic leadership process. This entails that leadership flexibility and mobility should suit the situational paradigm by demonstrating the competences of an appropriate leadership style. Moreover, in educational settings, leadership roles are driven towards the formulation and implementation of the country's educational policies (Davidoff et al., 2014). This enables school leadership to be inclined towards bureaucracy, so as to provide the educational administrators with adequate information on how to formulate and implement the rules and procedures. However, majority of leadership responsibilities are carried out by deputy and vice principals (Rajbhandari, 2006). In relation to this, who are the real school leaders, and who are taking responsibility for educational leadership?

School success is often credited to effective school principals. However, there are cases where schools are not able to provide adequate supplies to their students, even though such schools may be able to provide and follow national educational administrative policies. Most importantly, educational leaders are those who hold positions at the national department of education. How effective have these educational leaders been in promoting quality and techno-modern education in order to develop the mind of students and teachers? Pont et al. (2008) indicate that due to the challenging nature of leadership, policy makers need to adapt school leadership policy to new conditions. This is in order to respond to the present and future needs of the environment, which aim to develop competences that deal with complex challenges through additional training, support and incentives. Hence, this supports the need for leadership maintenance in educational settings by incorporating the PSP paradigm.

Vugt and Ronay (2014) state that evolutionary psychology in leadership theory evolved to solve important coordination problems among groups and living organisms. It is the psychological mechanism that integrates the social being in professional communities. Leadership is associated with social identity, which is promoted by group integrations spawned by socio-psychology and social relationships thereby creating social categorisation (Hoggs, 2001; Bass, 1990). Burns (1978) stated that psychological mechanisms triggered transformational leadership. Sherman et al. (2012) claimed that psychological and physiological stress can be loosely manifested. Consequently, it is emphasized that PSP parameters were integrated to develop leadership wellness, thereby, enabling a followership's wellbeing. All these aspects are assimilated to reflect the importance of leadership maintenance with PSP parameters, thus, filling the gap of leadership competences. Moreover, the maintenance of PSP for the wellness of leaders and followers can enhance the attainment of competences.

For this reason, leadership maintenance is an essential phenomenon that all educational leaders need to address.

However, national education policies concentrating on administrative issues may divert the school leader's attention to different activities where it may not function optimally and adequately. This does not allow school leaders to be dedicated to leadership maintenance, as they focus instead on local affairs, which impact negatively on school success. This also creates psychological distress for school leaders and further exacerbates their frustrations. In this situation, school leaders need to remain psychologically and physiologically healthy by reflecting on proactive behaviour to address leadership competences. Leadership maintenance promotes leaders' well-being through psychological, sociological and physiological wellness. This provides leaders with opportunities to concentrate on the development of their own cognitive complexity in an attempt to strengthen their weaknesses and develop competences for leadership readiness.

In connection to leadership maintenance, educational leadership also consists of officers at the national level who are concerned with educational affairs in their country. They need to be visionary and focus on the development of their psycho-social, sociological and physiological parameters to reflect their competences in leadership readiness that meet the situational circumstances of demanding consequences of schools at the province, state or districts. Moreover, in educational settings, who are the beneficiaries of quality education is not a question we seek to answer. However, effective educational leadership is achieved when students' progress along with the teachers and the schools. On the contrary, schools' failure and lack of commitment on the part of teachers constitute another aspect of failed educational leadership. Meanwhile, educational leadership would be successful if many schools at different locations in the same province or districts are doing well. It will not be effective if other schools in the same area fail to provide quality education to learners with inadequate facilities. The readiness to adopt leadership maintenance by educational leaders in keeping all the national schools at the same level of quality is important, even though there is a need for dynamic and effective educational leadership. Therefore, dynamic leadership maintenance, at both school and national levels, is required to develop readiness for flexibility and mobility in meeting the situational demands of educational settings.

RESEARCH METHODOLOGY

Research design

This exploratory study is qualitative by design. Qualitative research is an effective approach to gaining insight into the real realm of leadership maintenance. It proceeds by talking to school leaders. This provides insight into their views, opinions and feelings towards leadership.

Research tools and techniques

It is necessary to conduct open-ended interviews with many people at the same time. This enables the collection of relevant data, which in this study was obtained from 30 participants in the Gauteng province. The participants were educationalist, including academics, teachers, principals, students, and government employees. This approach also strengthened this exploratory study by gathering different views from different participants involved in the educational sector at different locations of the Gauteng Province in Johannesburg, South Africa. The participants gathered together for a training course organised by the Educational Leadership Institute of the University of Johannesburg. This provided an opportunity to approach the participants for open-ended interviews with respondents willing to give some time. The interview session was designed pragmatically to seek answers to problem statements at low cost and with many participants at the same period of time. The convenience of open-ended interviews enabled the collection of data at a time which is very efficient and effective. This saved much of time for data collection, transcribing, data reduction, and data displaying in order to draw conclusions.

The participants came from different schools including private, public and missionary schools. Their views were related to practical incidents in order to understand leadership maintenance through the PSP parameters. The participants gathered at the University of Johannesburg's Soweto Campus with the co-operation and support from Educational Leadership Institute. All the participants were given equal opportunity to share their views and opinions.

Data analysis procedures

Data triangulation methods were applied to arrive at giving meaning to the data. Interview and transcripts were examined for reliability and validity. This also provided an alternative explanation from the data collected to explore leadership maintenance through multiple sources of data collected from 30 participants. Data were analyzed to find the truthfulness of the claims by investigating similarities of leadership practices in similar educational settings. Coding made the analysis easy by observing the similarity in respondent's interviews. These similarities were analyzed to provide answers to the research questions.

Consent was received from all the participants who were willing to participate in the interview. Due to ethical considerations, participants' identities are protected. They are given different names such as, respondent 1, respondent 2 in order to represent their views fairly. Participants were closely monitored in a controlled environment. Forty-five minutes were given to the participants to answer fifteen interviews questions.

RESULTS

Leadership maintenance in this study is closely connected with the well-being of educational leaders at both locally and nationally. This includes educational planners, school leaders, academic leaders and curriculum leaders. Moreover, leadership maintenance in this study focuses on the leader's psychological, sociological and physiological characteristic which impact on the leadership environment. To understand the need for leadership maintenance for educational leaders, the respondent's views and opinion were captured. Their responses exemplified their understanding of educational leadership

in their own opinion, which reflected the need of leadership maintenance.

Of the 30 participants, many responses indicated that educational leaders were principals who are responsible for schools and provide direction to others. Despite educational leadership at the lead, most participants also had the opinion that school leaders are the busiest individuals, who are involved in practically every activity inside the schools and out the schools, while implementing educational policies at the same time. In addition, there were also some responses which indicated that leaders in educational settings also consist of teachers and students. However, many perspectives were highlighted in order to understand both educational leadership and educational leaders.

In order to understand the views of the respondents on educational leadership, coding was conducted to highlight their perspectives. The codes indicated that leadership entails leading, directing, managing and guiding with twenty-two respondents agreeing that supporting educational leaders as team leaders benefit educational settings. The codes also indicated one respondent viewed leadership as a mentor, coach and counselor. Four respondents also stated that influencing the followers is a key ingredient to leadership maintenance whereas three respondents also opined that educational leadership is a responsible task, which takes accountability for educational settings.

A synthesis of leadership maintenance filling the gap through psychological, sociological and physiological paradigm enriching leadership competences

Leadership maintenance is a key to effective and successful leadership. The reason for this is that many educational leaders are distressed with their daily activities, which include implementing the nation's educational rules, law and acts. This keeps most educational leaders occupied and diverts their attention from their local activities, which are carried out by their deputies. Nevertheless, the accountability of educational leadership needs to be addressed in favor of nation's educational success. In addition, educational leadership is different from leading in educational settings.

Socio-psycho parameters in leadership maintenance

Educational leadership is a broad perspective about leadership and covers a variety of leadership roles at the national level. However, leadership in educational settings refers to leaders who are directly involved in local academic affairs. In both cases, leadership maintenance is essential to enhancing and enriching their competences by understanding themselves and

strengthening their weaknesses in order to remain competent and tackle the situational and contextual variations arising due to internal and external forces. Respondent 1 supported this view by mentioning that:

The principal is at the heart of the school leadership. He/she is an engine of the school. He/she must give time to know people around the school and even the community. This will help the principal to know where he or she is propelling the school to and even know the people who will help him/her to drive the school.

Maintaining Leadership through developing personal competences is very important for leaders to enrich their potential in handling situations effectively and successfully. This enables academic leaders to gain control of the environment through effective communication and thereby remaining confident in building trust in their followers. In connection to this, respondent 3 said that:

People are unique including their circumstances. When you understand your team, you are able to adjust in the way of dealing with them and this yields better result. In addition, the ability of the leadership to build confidence and trust in the followers is important in creating harmonious environment within the educational settings. In supporting this view, respondent 4 mentioned that:

School leaders by understanding their followers will be in a better position to offer leadership and to have harmony in the school. It will prevent assumptions and this will help principals to have facts on the table. I think it will also make their jobs easier.

In corroborating this view, respondent 22 also added that:

Yes. The principal must understand teachers and other staff because he deals with different people with different problems. As a result, the principal must act as a parent to all. They can be effective by demonstrating good leadership and treat staff members equally.

In addition to this, respondent 4 pointed out how school leaders can improve relationship between leaders and their followers. School leaders are key players in educational settings, as they lead by example in grooming, and morality. He further added that:

It is a must that school leaders need to give educators moral support. Every leader whose followers believe in him, always get the same support he offers to them.

Psychological parameters motivate leaders to embrace transformation. Leadership maintenance connects the psychological, sociological and physiological state of educational leaders. PSP create new dimension of dynamic leadership by stimulating intellectual and

relational approaches to followership. They also promote resourcefulness by equipping the leadership with practical knowledge, information technology and updating the policies. This enhances leadership maintenance by enriching leadership competences. In supporting this view, respondent said:

Principal must understand their teachers since they work together like a team. The principal must be a good listener and must be able to advise or share ideas with the teachers.

Leadership maintenance also strengthens educational leaders to understand follower's immediate needs. This is important in enhancing leadership competences as it helps followers to understand their leaders. Following this pattern of maintenance, educational leaders along with the followers can identify the strength and the weaknesses of their organisation. In addition, identification of the weaknesses is the gateway to solution. This further promotes social harmony within the educational settings. In connection to this, respondent 6 mentioned that:

It is not an integral part of being a manager if you do not understand your staff. How can you support them? A manager needs to know his /her staffs strengths and weaknesses so he/she knows what areas need to be developed or how he/she can harness those strengths to improve the institution. They should develop a good rapport with all staff members, motivate them in the work place so they know they play a vital role in the institution. He/she also needs to be firm with learners when it comes to discipline.

Identifying the weakness and strengths lies within the organisational context. Resolving the weaknesses can lead to harmonious organisational environment for all. This also holds for learners/students/pupil problems and weaknesses. Respondent 26 said;

Principal is effective by knowing the others' capabilities, strength and weaknesses and they can place them approximately. Knowing your human resource shows that you care.

Understanding leadership and followership is a pivotal component of effective and successful organisation rather than only understanding the leaders and followers paradigm. In connection with this, respondent 20 states that:

The principal should understand their students and educators for the smooth running of the schools. If educators are happy even when they are overloaded, they will never feel they are overloaded.

Supporting the view respondent 5 mentioned above,

respondent 23 elucidated what successful leadership is by stating that:

The school principal must understand all his teachers and learners in order to manage the school effectively. He should know their weak and strong points. He must have time to interact with his staff and most problematic learners if time permits him. They must lead by example by giving equal treatment to all his staff. He should be able to solve problems without giving favour to one party at the expense of another.

Physio-psychological parameters in leadership maintenance

With regard to leadership maintenance in favour of physiological paradigm for promoting leadership competences, educational leaders need to acquire and be equipped with various resources. In connection to this, resourceful leadership produces an extra measure for leadership maintenance with additional facilities. These additional facilities could be enhanced technologically in educational settings, adequate financial resources for educational infrastructural development as well as knowledge and knowhow. Resourcefulness helps educational leaders to be confident. In regards to resourceful leadership, leadership dominancy can also be demonstrated through the possession of adequate financial resources so that good facilities can be constructed for schools and good leaders are hired to run the schools. This suggests that the physiological paradigm is essential and necessary for educational leaders in addition to sociological and psychological aspects for leadership maintenance. In order for knowledge resourcefulness to enlighten the physiological paradigm of leadership maintenance, the result suggests that sharing information between leaders and followers promotes collaboration for achieving organisational goals. This is supported by respondent 30 who stated that:

By knowing the people you lead will help you to impart information and correct the necessary aspects of your environment as well as the needs of those who are under your control. School principal can be effective through communication with the people they lead and manage and control everything with diligence as well as delegating the staff in relevant positions not favours.

Information sharing is a way of promoting collaboration by sharing views and opinions which align with the understanding of the contextual variations. This integrates the psychological paradigm of motivation into pursuing the responsibilities of leadership enthusiastically (Center for Comprehensive School Reform and Improvement, 2009). Therefore, producing new ideas and concepts of how things are to be done to achieve

effectiveness rather than doing it rightly to become successful. The results also suggest that participatory management is essential in promoting intrinsic motivation, since it places emphasis on understanding the value of a follower's capacity. This in turn encourages educational leaders to lead in the right direction through equal contribution from the followers. In connection to this, respondent 29 stated that:

Understanding the teacher, the learners and other staff helps to know why they act the way they do, and when they act the way they do. Besides, it helps principals in making and taking informed decisions which would lead to improved output. Teachers and learners in distress may be engaged in confidence. The school principal must be transparent in his /her dealings, must acknowledge the work and input of others, must invite and allow participatory decision making, must encourage and foster team work capacity building and allow constructive criticism.

Supporting the view to understand followers' psychological, sociological and physiological values promotes intrinsic motivation to followers. This promotes leadership well-being by maintaining resourceful leadership capabilities alongside the resources of followers. Moreover, understanding the psychological, sociological, and physiological values of their followers enables leadership readiness to imbibe flexibility and mobility in promoting resourcefulness that favours individual consideration (Burn, 1978). This eventually results in social harmony and fosters an employee's psychological state. Leader and followers are in true companionship in an organisational setting. This true companionship breeds ideas that proffer solutions to problems of immediate context and the future. However, while immediate small contextual variation is important, many leaders are ignorant and avoid them. This creates a negative psychological effect on leaders if small variations are directly concerned with the follower's wellbeing. Leadership maintenance refers to the wellbeing of both the leader and the followers. Therefore, the wellbeing of both leaders and followers are equally vital and necessary in an educational setting. Hence, it is sensitive and fragile if it is not taken seriously. Supporting this view of fragility and immediate sensitivity in educational settings, respondent 25 states that:

The principal should understand his teachers and students because they all come from different environments. If the educators come late to school, the principal must check if that is a pattern. If it's a pattern like every Monday, maybe the educator is having a problem of alcohol abuse. School principal can be effective if they practice democracy, they delegate duties, consult with other stakeholders outside the school environment, take charge and give advice.

Leadership maintenance for the wellbeing of leaders and followers by addressing the issue of followership enables effective leadership. In connection to this, understanding the immediate variations and knowing followers' socio-, psycho- and physiological state enables the way forward for leadership maintenance by keeping the organisational climate harmonious, relational, safe while maintaining a conducive environment for both leaders and followers including the students and non-teaching employees (Hoffman et al. (2009). The results highlight that these aspects of understanding the followership paradigm as stated by ten respondents whose views are identically matched to each other, as follows:

Respondent 7,

School principal must work hard in hand with the entire teaching and non-teaching staff (including learners) because we are all under one umbrella. One cannot function without the other. We need each other to run the school effectively and by practising good leadership skills, doing their work as well and enforcing discipline effectively.

Respondent 8 said,

Leaders must be able to know their strengths and weaknesses. By so doing, he will be able to help or develop them if it is necessary. It will equally help him to understand his frustrations concerning work matters. Also, he must use an open door policy, be transparent, involve all the stakeholders and be democratic.

Respondent 9,

If he understands, he will know the things which they like and the thing which they don't like. He will lead better if he/she knows them.

Respondent 10,

Leaders need to have a good understanding of their teachers/students and the staff as a whole. This will assist in delegating duties. He will know who is good at what. Principal must involve his SMT and also teacher, parents i.e., SGB. Everything will run smoothly. Communication is also a key leadership tool.

Respondent 12,

The principal should know and understand his staff and students so that he is able to work easily with them. If you know what you are dealing with, it makes your job much simple especially in case of problem solving. A principal should be effective and enthusiastic in his work and should always develop and bring new positive changes to his school.

Respondent 14,

School principal may notice wherever there is a problem and he/she can do it by showing openness to them. He will also have to interact and show that he /she is a part of them and cares about their wellbeing.

Respondent 17,

School leaders must understand his/her staff by using effective communication which involves all role players.

Respondent 18,

It is very important to know and understand what kind of teachers and learners is she/he dealing with and what kind of intervention strategies she can use to help in problematic areas.

Respondent 19,

The principal must know his or her teachers so that he or she knows who she's dealing with to avoid some of the conflicts that take place at her school. Also, knowing how to approach that particular teacher if there is problem is important. Principals must know their staff.

Respondent 28,

It is important that he must understand his or her teachers, students and others. He need to know their background because we come from different backgrounds. We have different problems. He needs to be a good listener, give people a chance to express their problems.

Socio-physiological parameters in leadership maintenance

Leadership maintenance is very important for school and educational leaders. Leader's communication skills and their ability to build confidence and trust in their followers are components of leadership that enhance and enrich the competences of leaders. Results suggest that these three components of leadership further enhance the wellness of the leader by bringing about sociological state through effective communication. This healthy sociological paradigm also integrates the psychological paradigm for grooming within and around the followership environment in order to promote wellbeing (Owens, 2004) through followership to leadership. In connection with this, understanding the sociological and psychological paradigm instills motivation to accomplish the extraordinary tasks that the future demands. Respondent 27 states his views, as follows:

Principals must be able to handle any situation that they find themselves in. Understanding others make it easy for you as a principal to make informed decisions when the need arises. School policies can be easily implemented with the understanding of people in mind.

With regard to the physiological paradigm, resourcefulness also complements the leadership and followership situational needs. Resourcefulness includes both intrinsic and extrinsic aspects. The intrinsic aspects include information, knowledge and quality that are shared and distributed within and around the organization and its members from the leader to the followers. This is also important because the intrinsic values are shared from the followers to the leaders. For this reason both transaction and transformation are needed for leadership maintenance. Supporting this view, respondent 24 says that:

As the school runs smoothly, we must have balanced approach of discipline in our school and classrooms. They can be active so long as they take their responsibilities and have some consultations with staff and be hands-on in managing and leading us.

In addition to this, respondent 16 expresses the same view by mentioning that School principal must know the strengths of their teachers and they must use them to make the institution a better learning and working environment for all. As for students, it will make them become better and be able to focus and face their challenges in a positive manner. They must be punctual at school and make sure that all the department's report their weekly activities. They must also communicate with the learners in a positive way in order to help them if the need arises.

The extrinsic aspects of the physiological state to leadership maintenance are the resources at hand for immediate use. This entails investments in technologies, training, research and development in order to improve the quality of work life for all. Physiological needs of both leaders and followers should be met. This improves the quality of work life through investment made in research and development and training. The results also indicate that a follower's level of readiness impacts on leadership readiness for the wellness of an educational setting. Wellness through enhancing and enriching the physiological aspects may not be connected directly but maturity is gained by investments made on employees through training and development. Supporting this view, respondent 11 says that:

Leaders must be aware of their teachers' wellness. It is a priority for all principal to take care of their staff members and students so that the organisation can run smoothly. Leaders must be hard workers who are empowered through attendance of workshop.

Consequently, leadership training and development are necessary for educational leaders to develop their competences in challenging situations. The inadequate allocation of resources can frustrate organisational processes, which in turn can frustrate the effort of leaders in developing their followers' potential through offering training or quality work life. Supporting the views of followers' maturity, respondent 15 mentions that:

Each one of the staff members has a role to play which requires participation in leadership and management through committees. It is hard to generalize; however, others perform their duties in an efficient manner while others are just confused and lack knowledge to carry out their duties. So attendance of induction workshops and management courses aimed at improving on staff's qualifications and competence is important.

In connection to the physiological paradigm for leadership maintenance, educational leaders must be effective in incorporating organisational members into situational difficulties by adopting similar experiences from the past or receiving adequate leadership training. Sometimes organisations, like business houses, arrange training sessions for their staff; nevertheless; most educational settings do not train their staff on site. Most leaders are trained in the phenomenon of conceptualized leadership. Moreover, leadership is not achieved through training alone, but through participation in the support of administrative and bureaucratic roles in educational settings. Respondent 13 states the benefits of training sessions as follows:

Leaders perform their roles satisfactorily because the department of education (DOE) assists them through attendance of workshops and trainings. Ongoing training and workshops are necessary for school principals. Understanding their role is a must. I don't think there can be any problem if they know their roles in the workplace after attending contact session.

Leadership maintenance plays an important role in enhancing leadership competences. Moreover, this can be enriched through regular workshops and training programmes to help the leaders remain resourceful. In educational settings, technologies, such as smart board and computers, have become pivotal assets. The educational settings of the future must orientate towards the development of technologies. The enhancement of the physiological paradigm through the introduction of technologies for teaching and learning methods also complements leadership maintenance. In connection to this, respondent 2 states that:

They can be successful by implementing whatever information they got from workshops and by applying school rules and implementing the policies to the letter.

Principal is the leader for the whole school. Educator is the leader in his/her own class. Principal must be open to change e.g., the use of technology demanded by the modern era and also maintains the classroom management research to attain success.

Physiological paradigm in terms of resourceful leadership requires both intrinsic and extrinsic factors for leadership maintenances. Leadership competences for attaining effectiveness and success at the same time synergises the pulling together of resources at the right time using the right approaches. Therefore, attaining resourceful leadership requires that the equilibrium of allocating and transforming resources along proper channels be maintained. Competences in educational leadership are generated through adjoining situations, follower readiness and leader readiness when taken together to produce a harmonious organisational culture and climate. In connection to this, respondent 21 mentions the following:

Principals must be knowledgeable, give directions and empower/equip all staff members to be in charge themselves. Principal plays real leadership role by giving directions and he consults districts if he is not sure on what to do. He also advises staff to ask/consult to know what they are supposed to do. He is part of every committee. They try to perform their duties to the utmost, also give feedback reports from meetings. Read, clarify and implement policies and circulars from the district. Abide by the rules, policies, have accounting sessions, support, mentor and give advice if necessary.

Furthermore, leadership maintenance is an ongoing process where educational leaders are required to be attentive and alert, while indulging both the leaders and the followers. The psychological, sociological and physiological (PSP) parameters of leadership maintenance have necessitated the need to develop an organisational culture and climate, which can produce a conducive and harmonious environment for the wellness of both leaders and followers.

Therefore, findings suggest that leadership maintenance is an initiation of activities by leaders to maintain their own wellness, as well as the wellness of the followers. PSP are essential elements that complement the maintenance of leadership wellness, which often have reflexive effects. Leadership maintenance through PSP produces reflexive effects through the relationship of cause and effect. Thus, leadership action premised on PSP elements produces positive effects towards followership.

DISCUSSIONS AND CONCLUSION

Leadership maintenance is a key element to leadership

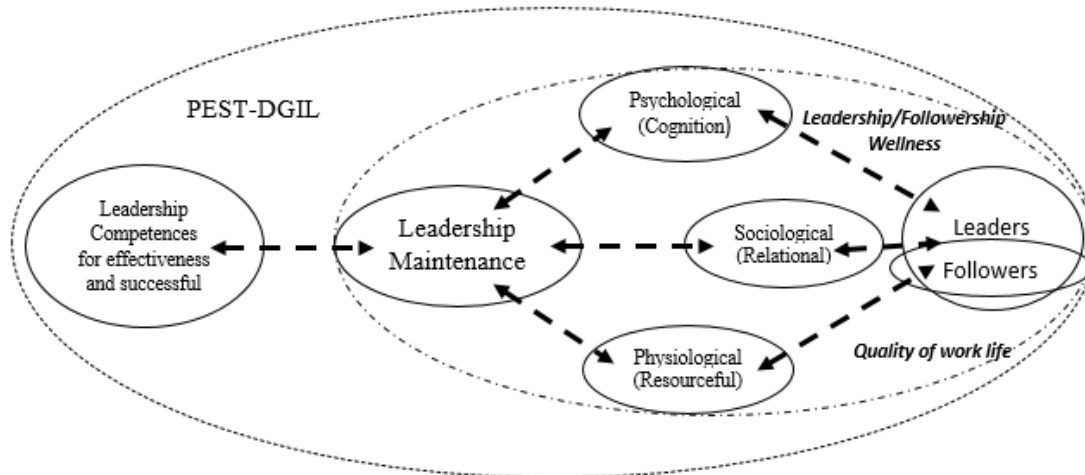


Figure 1. Leadership Maintenance filling in the gap.

succession and effectiveness. Leadership maintenance helps educational leaders to understand the contextual variations occurring with followers and in the situations. This is achieved by referring to the variations that enable a referee leadership style (Rajbhandari, 2013) and synergizes psychological, sociological and psychological paradigm in the leader and the followers. This helps educational leaders to understand the immediate context of followership and leadership by developing the capabilities to gain competences for becoming effective and successful. Leadership maintenance is an ongoing process that necessitates the need for leadership flexibility and mobility. However, context and situation may not replicate to offer the same effect always. This enables leadership to embrace the concept of maintenance of their leadership style to fit to the context. As context and situations are complex, multi-faceted, and multidimensional, the process of leadership maintenance enables school leaders to act with the appropriate leadership styles. Leadership appropriateness inspires educational leaders to identify the demands of followership and context. This also promotes leadership readiness in filling in the gap by enabling the leadership elasticity and equilibrium that further maintains leadership appropriateness.

Leadership is a corresponding feature of followership. The results suggest that understanding the followers is a key ingredient for leadership to become successful and effective. Nevertheless, the results also suggest that educational leaders must also be equipped with adequate knowledge and should be willing to share information as they expect to receive the same in return. These parameters of leadership and followership are complemented by taking into consideration both leadership and followership maintenance, which incorporates the psychological, sociological and physiological paradigms.

The assimilation of these three PSP states in the contexts of both leadership and followership enhance the wellness and quality of work life by producing social, harmonious and conducive environment for all in educational settings (Figure 1).

Leadership maintenance in educational settings is required to enhance leadership competences and followership competences. These include the teachers, non-teaching members and the students. Consequently, leadership maintenance is necessary for all who are involved in educational settings. Leadership is complex in this context and it is even difficult to define who really plays a leadership role. From the broad perspective, leadership in the national educational authorities includes those who plan for the nation's educational system at the local level of leadership. For example, this includes the school principal, class teachers, subject teachers, students, prefects and non-formal student group leaders. Therefore, leadership is both as assigned and emergent. In such instances, the failure of leadership is determined by the ineffectiveness their level of responsibility and accountability. Moreover, leadership failure is often viewed at the local level. This is because most leaders in educational settings at local levels are responsible for leadership maintenance either consciously or sub-consciously, as they grapple with new problems almost every day and engage with the external contextual forces in solving these problems. The reason for failure of leadership is because the processes and approaches to leadership maintenance do not consider the psychological, sociological and physiological paradigm that addresses both the leadership and followership. Therefore, findings from this study suggest that leadership maintenance also incorporates the followership maintenance. Integration of both leadership and followership maintenance has a reciprocal effect, which is

Mirror effect reciprocity of leadership and followership

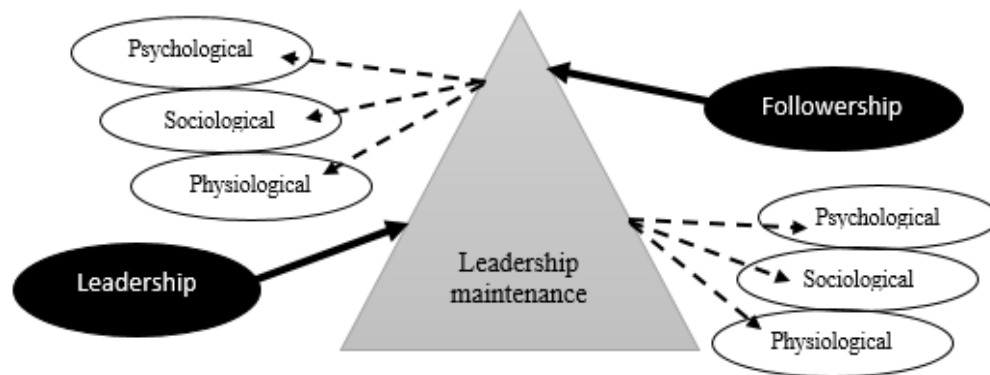


Figure 2. Leadership maintenance for mirror effect.

a mirror effect of leadership approaches to maintenance. Consistency in appropriate leadership maintenance considers the psychological, sociological and physiological paradigm as, and when, required, as it is not mutually exclusive. Hence, leaders can create a mirror effect that is reflected also from the followership. Moreover, the mirror effect is an act of reciprocity between leadership and followership. The mirror effect is the reflective act of leadership to followers and is the reciprocity from the followership to the leadership. Therefore, the wellness of followers includes wellness of leaders. This is achieved through the leadership maintenance adopting the psychological, sociological and physiological paradigms of both the leadership and followership. Figure 2 illustrates the mirror effect of leadership and followership.

Leadership maintenance replicates the psychological, sociological and physiological paradigms from leadership to followership and back. It is a dynamic product of the mirror effect. This is possible by understanding the followership through psychological, sociological and physiological paradigm. However, there are parameters of constraints from both leadership and followership. Understanding these parameters reduces the style drift, but creates leadership equilibrium to maintain the equilibrium of followership. Nevertheless, mirror effect is a reflection of leadership acting towards followership on the basis of these three paradigms. Moreover, the mirror effect also impacts on leadership reflected towards followership, which generates the outcome of the actions. Therefore, the mirror effect is the reflection of leadership action towards the followership that produces the similar reflective outcome in return. This means that maintaining leadership should be observed not only as the process of maintaining leadership, but also as maintaining the followership. However, to produce the replication of action, in turn, maintenance of oneself is also vital concern to understand oneself before gaining an understanding of the other. Thus, leadership maintenance is a

psychological, sociological, and physiological state of leadership that harmonises the cognitive complexity, relational approaches, social awareness, wellbeing, communication, confident, trust and resourcefulness. This results in a harmonious organisational climate and culture, which is proactive in developing competences for effective and successful followership maintenance in educational settings.

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Full Length Research Paper

The development of professional learning community in primary schools

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The objectives of this research are: (1) To study the current situation and need for developing professional learning community in primary schools; (2) To develop the model for developing professional learning community, and (3) To study the findings of development for professional learning community based on developed model related to knowledge, comprehension, and competency in developing professional learning community, teaching behavior and students' quality. The research area was purposively selected three primary schools. Participatory Action Research was administered in 6 phases; there were 7458 participants. The instrument used for data collection in this study was questionnaire. The statistics used were frequency, percentage, mean, and standard deviation. The findings are as follows: (1) The current situation in developing professional learning community showed that the administrators' overall opinion in all 5 aspects is in "High" level; (2) The model for developing professional learning community consisted of 4 major factors: (a) Preparation for learning organization; (b) Development of shared norm and value; (c) Learning from common work practice, and (d) the expected outcome. (3) The evaluative finding of teachers' knowledge, comprehension, and competency in developing professional learning community was in "high" level.

Key words: Model development, development of professional learning community, professional learning community in primary school.

INTRODUCTION

The National Education Act 1999 and the Revised Issue 2002 Thailand offered national reform for more than 10 years. But, the evaluative findings from different work showed that Thai students' learning achievement from quality measurement on average was in "Low" level. Specifically, the O-net (Ordinary National Educational Test), or the international students' evaluation of the organizational members for economic development

cooperation (PISA- Program for International Student Assessment) showed that very little number of students could have high score. For reading competency, Mathematics and Science Competency, they had low score continuously especially in Mathematics and Science. Thai students belonged to the "Low" score group. In addition, according to the second round of external quality assessment (2006-2010) from data base

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of The Office for National Education Standard and Quality Assessment (Public Organization) presented to the Office of Basic Education Commission, it was found that in early childhood and Basic Education Level, Standard 4, the students are competent in analytical thinking, synthetic thinking, critical thinking, creative thinking and vision; in Standard 5, the students have necessary knowledge and skill based on curriculum. The evaluative findings were in "Fair" level from the 2 Standards (The Office of National Testing, 2012)

Comparing with international level, the students had lower level of skills in Language and ICT than their neighbor countries. Thai students' overall competency in competition was lower than the neighboring countries in ASEAN Region especially in Singapore and Malaysia. Every ASEAN member country will enter into ASEAN Community in 2015. It is necessary for Thai Educational Reform to use the new paradigm in cooperating ASEAN Alliance and use teacher community base by focusing on important changes which include: teachers should be learning managers who can change instructional process into learning process by maintaining academic excellence, and preparing the students to obtain learning skill, life skill and work skill in the 21st Century. Furthermore, it is necessary to change the classroom into learning area. Thailand should include the educational reform system which is relevant to problem situation as well as need for human resource with quality and competency for global competition (Panich, 2012).

The development of educational quality by system entails developing the professional learning community for teachers as practitioners and to share and learn how to practice. The practice of sharing and learning aims to aid students' learning; it is also for complex intelligence development to prepare students for social life in the 21st Century through learning. The focus is on human growth by learning from real practice. Teachers change their role into coach. According to the approach of development in professional learning community, the teachers were learners who learned through the students' learning method. The students learn in team. Teachers work and learn as a teamwork, focusing on the teachers' learning from work practice and not teachers' training (Panich, 2012). The Professional Learning Community includes the group of persons who share or discuss, through critical question, daily life work practice, reflection of work practice and collaborated work practice focusing on learning as well as teachers' professional progress (Mitchell and Sackney, 2001; Toole and Louis, 2002).

From educational context, professional learning community includes pattern and behavior, the relationship between persons and patterns of belief or norm such as goal and value. Its definition consists of 2 parts: Process including sharing and discussion, asking and critiquing, reflection and collaboration of shared power for work practice; the part of expected outcome in work practice (Intanam, 2010).

Bryk et al. (1999) and Kruse et al. (1995 cited in Bulkeley and Hicks, 2005) specified that professional learning community of school consisted of 5 major factors as follows: (1) the shared norms and values, (2) collective focus on student learning, (3) collaboration, (4) de-privatized practice, and (5) reflective dialogue. These factors are not in hierarchy. They were used for classifying the differences between community as well as professional knowledge, from other kinds of school culture. Although all of these factors are classified into classes clearly, there is high relationship in some factors or some might affect others. Wenger (1998 cited in Giles and Hargreaver, 2006) supported that for school development and improvement, there should be strong implementation of professional learning community. The professional learning community of school consists of 3 major issues: Collaboration or discussion or reflection by experts or school experts; 2, congruent goal focusing on teaching work practice, and learning in collaborative work; 3, collection and evaluation, and information for searching as well as decision making in continuous work progress.

In the present, educational quality development by professional learning community system has been implemented in many countries such as the United States of America, Japan, Singapore etc. These schools used Dufour's principles which are, 'what is the student need to learn? By which method? Can the students know from these things?' The teacher team analyzed and developed the test findings (Hinman, 2007) in Thailand, the model for developing the Professional Learning Community was administered in school and Educational Service Area levels as stage for sharing and providing the learning process. The future skill in Thailand context was constructed by project-based learning including the inspiration for developing the learning process in Bo-kaew-wittaya School, Kampangpech Province, small sized school and large sized school of Pa-re-rai Municipal School, Roi-ed Province.

There was the design of livelihood and culture learning for Bangkok Pleonpattana School and educational management of human's life as school model for Lam-plai-mad Pattana School, Buriram Province. All of these were accepted as alternative for new and effective educational management.

Therefore, the researcher was interested in developing educational quality and learning management process for problem solving through the construction of professional learning community in primary schools for it to be guidelines for educational reform. Teachers are responsible for their students and are part of the professional learning community.

LITERATURE

From educational context, it is concluded that professional

learning community includes pattern and behavior; for instance, the relationship between person and pattern of belief or norm such as goal and value. The definition of professional learning community consisted of 2 parts: Process including sharing and discussion, asking and critiquing, reflection and collaboration in shared power for work practice. The part of expected outcome in work practice includes professional teachers impacts on students' learning (Intanam, 2010).

On the factor of professional learning community, educational researchers such as Bryk et al. (1999) and Kruse et al. (1995 cited in Bulkeley and Hicks. 2005) specified that professional learning community of schools consisted of 5 major factors as follows: (1) shared norms and values, (2) collective focus on students' learning, (3) collaboration, (4) de- privatized practice, and (5) reflective dialogue. These factors are not in a hierarchy. They were used for classifying the differences between community as well as professional knowledge, from other kinds of school culture. Although all of these factors were classified into classes clearly, there was high relationship in some factors or some factors might affect others. Wenger (1998 cited in Giles and Hargreaver, 2006) said that for there to be school development and improvement, strong professional learning community should be implemented. Professional learning community of school consisted of 3 major issues: First, Collaboration, discussion or reflection by school experts; second, congruent goal focusing on teaching work practice, and learning in collaborative work; third, collection and evaluation, information for searching and decision making for continuous work progress.

In the United States of America, professional learning community was administered in primary schools in Missouri (Rentfro, 2007), Virginia (Burnette, 2007), secondary schools of Texas (Phillips, 2003), secondary schools of Arizona (Beyond, n. d) and secondary schools of California. The teacher team analyzed the test and evaluative findings to be higher (Hinman, 2007). In Thailand, the model for developing professional learning community was administered in schools and Educational Service Area levels as stage for providing the learning process.

The researcher was interested in developing educational quality and learning management process with quality to be a part of problem solving. This is done through the construction of professional learning community in primary schools as guidelines for educational reform. It starts with the teachers who are responsible for their students. The professional learning community extends from schools' teacher team to administrators at national level.

Research objectives

1. To study the current situation and need for developing

professional learning community in primary schools.

2. To develop a model for developing the professional learning community in primary schools.

3. To study the findings of professional learning community based on developed model related to: (1) knowledge, comprehension, and competency in developing professional learning community, (2) teaching behavior, (3) innovation in instructional development, (3) satisfaction on development model for professional learning community, (4) teachers' cooperation and experience sharing and (5) students' quality.

The steps taken in the research study

The research design was Participatory Action Research (PAR) administered in 6 phases as follows:

Phase 1: The study of basic information includes 2 sub-phases: (1) the study of related literature, (2) the study of the situation and need for developing professional learning community in primary schools under the jurisdiction of The Basic Education Commission. In this phase, the researcher studied document, approach, rationale, related theoretical approach with development of professional learning community. Then, the data were collected. The sample of the study consists of 379 administrators and 379 teachers. They were selected by multi-stage sampling.

The research was done in 3 schools: small sized school, medium sized school, and large sized school based on criterion of The Office of Nongbualampoo Primary Educational Service Area 1. They were selected by purposive sampling based on the following criteria: the school must be willing to participate in development, there must be convenient transportation, and low score in O-NET in 2012.

Phase 2: the selection and preparation of target school include 3 sub-phases: 1) collaborative study of schools in developing professional learning community, 2) teacher training in professional learning community, and 3) field trip study in model schools of professional learning community. The researcher implemented it at national level. Later on, the problem and need of schools in developing the professional learning community of school were cooperatively studied. The school administrators and teachers were trained and had field trip study in Lamplamad School, Buriram Province, for 3 days.

Phase 3: the development of the model for constructing professional learning community in schools consisted of 2 Sub-phases as: (1) the researcher and school staffs collaborated in constructing the professional learning community in schools, (2) the model was evaluated by external experts. The researcher held workshop for school staffs in research area schools, 1 school for each

session. They collaborated in synthesizing the information in Phase 1, and Phase 2, and determining the tentative model for developing the professional learning community of each school. One tentative model was obtained for each school. Then, each school collaborated in establishing the practice guidelines to be handbook model. In addition, the model was evaluated by experts based on propriety in context, feasibility, accuracy, and utility of model. Later on, it was revised and improved according to the experts' recommendations.

Phase 4: the implementation of development in schools based on the developed model consisted of 2 sub-phases as: (1) the researcher and school staff collaborated in planning for practice, (2) collaborative implementation based on specified action plan. The researcher and school staff collaborated in planning for practice by studying the handbook model, holding conferences for developing one's comprehension based on construction of professional learning community for school teachers according to the specified plan. The researcher observed, interviewed, and provided recommendations during the development.

Phase 5: the presentation of performance and sharing consisted of 2 sub-phases as follows: 1) conclusion and preparation, 2) establishment of stage for presenting their learning performance, discussion, reflection of implementation. The researcher and all 3 schools held workshop, concluded the performance of school development based on the model, administrators' performance, teachers' instructional management performance, and students' performance. The school administrators and teachers presented their development performance by exhibition, teacher representative's discussion, reflection of experience obtained from development based on construction of professional learning community, problem, obstacle, and recommendation. The researcher recorded the information from teachers' discussion, including their strength, weak point, and performance from exhibition as supplementary information for discussion of the findings.

Phase 6: the evaluation of school development based on developed model consisted of 3 sub-phases: (1) collaborative determination of expected outcome and evaluation technique, (2) collaborative evaluation of the existed outcome from implementation based on the model, and 3) reflection of evaluative findings as feedback for teachers, researcher, and school in order to determine the expected outcome and evaluative technique, data source, data collection technique, construction of evaluative instrument as well as planning, duration, activity, and school staffs' role as evaluators. Then, it was implemented based on specified plan. The evaluative findings were collected and analyzed. The conclusions were drawn and presented to the whole school teachers to be considered, analyzed, and critiqued. The researcher provided recommendations for improving

and correcting the model, and encouraged the teachers' team to use the revised model for general work development.

CONCEPTUAL FRAMEWORK OF THIS RESEARCH

This is presented in Figure 1.

METHODS

The instrument used for data collection was questionnaire which had 3 parts as follows: the first part was the checklist regarding respondents' demographic data and school data consisting of 5 phases. the second part covered one's opinion on the current situation and need for developing professional learning community in primary schools. it was ranked on a 5 level rating scale. there are 5 aspects: 1) the development of shared norm and value; 2) collective focus on students' learning; 3) collaboration with teacher colleagues; 4) de-privatized practice or advice for work practice and 5) dialogue or discussion for reflecting on one's work performance.

the third part was an open-ended question as well as supplementary recommendations.

RESEARCH FINDINGS

In the current situation in developing professional learning community of primary schools, the administrators' opinion in the 5 aspects was in "High" level. The mean values were ranked in order from high to low as follows: reflecting on one's work practice, the development of common norm and value, advice for work practice, and practice with common goal for students' learning.

For the situation and need for developing professional learning community of primary schools, the administrators' opinion in the 5 aspects was in "High" level. The mean values were ranked in order from high to low as follows: the administrators, advice for work practice, collaboration with colleagues, practice with common goal for students' learning, reflecting on work practice, and development of common norm and value. For teachers, the mean values were ranked in order from high to low as follows: advice for work practice, practice with common goal for students' learning, collaboration with colleagues for learning, reflecting on work performance, and development of common norm and value.

The researcher collaborated with the school to hold workshop for developing professional learning community based on each school's context. The findings of the development are as follows.

The model for developing the professional learning community of schools consisted of major and sub-factors which were common for all the 3 schools as follows: (1) preparation for learning organization consisted of 2 sub-factors- internal condition of school, and development of organizational culture for facilitating learning; 2) the development of shared norm and value consisted of 2 sub-factors- students' learning, and school staffs' shared

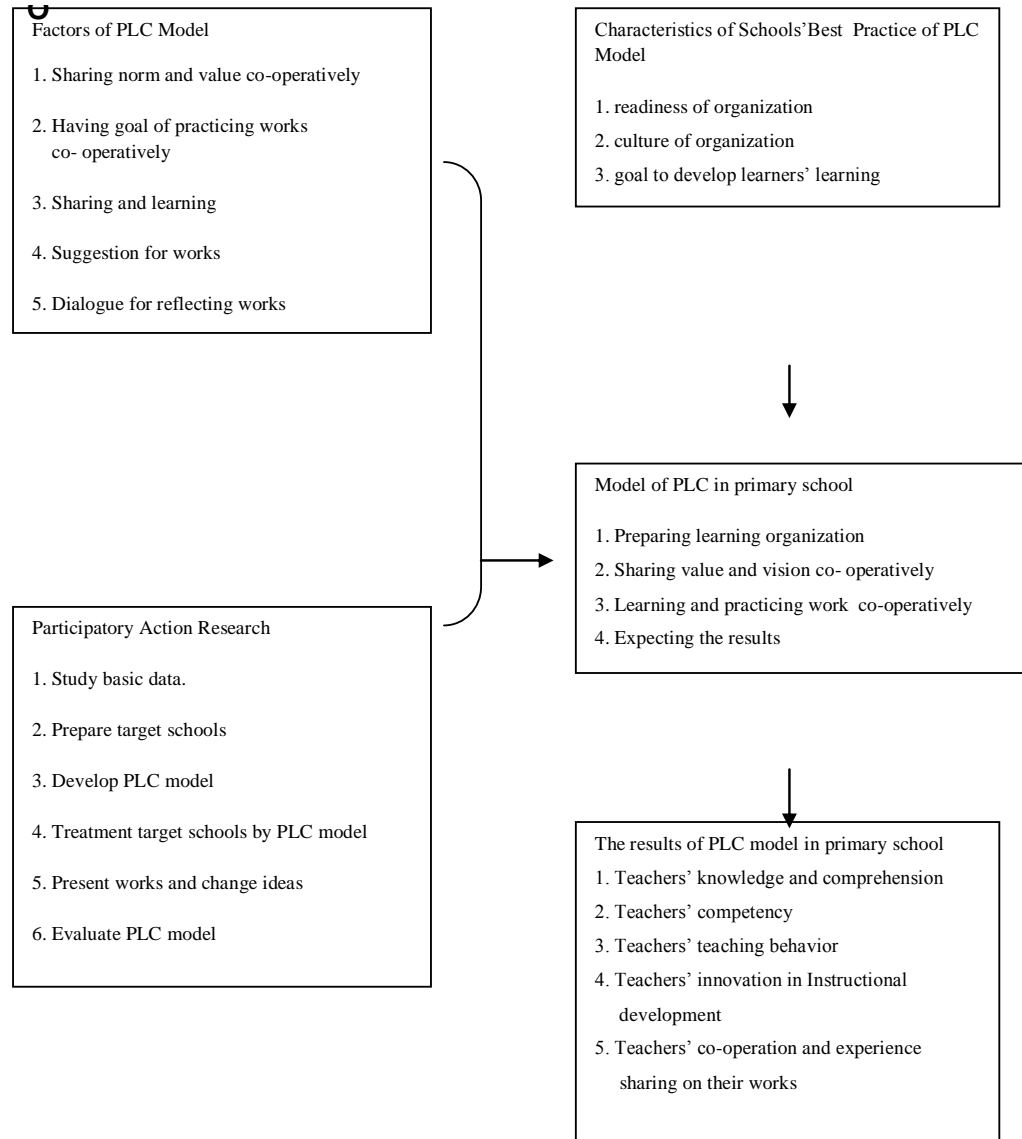


Figure 1. Conceptual framework.

learning by using PLC process; 3) learning from common work practice consisted of 3 sub-factors- shared learning of teacher group, development of learning process and AAR (After action review): shared success in school; and 4) the expected outcome consisted of 4 sub-factors- knowledge and comprehension of development of teachers' learning community, teachers' teaching innovation, students' learning performance, and friendship in school.

The findings of development of professional learning community based on developed model related to knowledge and comprehension, competency in developing professional learning community, teaching behavior, innovation of instructional development, satisfaction on model for developing professional learning community, teachers' collaboration and shared work

experience, and students' quality in all the 3 schools are as follows:

Findings of knowledge and comprehension in developing professional learning community showed that the developing the professional learning community. Their scores were 80 points above or 66.67%. Their scores were 70 to 79 points (31.25%). Their scores were lower than 70 points (2/08%).

The evaluative findings of competency in developing professional learning community showed that the teachers in all of the 3 schools were competent in developing the professional learning community; they were in the "Highest" level. The mean values were ranked in order from high to low as follows: aspect 4: advice for work practice; aspect 2: collective focus on

students' learning; aspect 3: collaboration with teacher colleagues for learning; aspect 1: the development of common norm and value, and aspect 5: discussion on reflecting the work practice.

The survey findings of teachers' instructional innovation showed that every teacher had instructional innovation of development for professional learning community. Ban-bog-none-rieng School had 26 topics of thinking skill. Toong-po-na-udom School had 13 topics of instructional innovation in students' discipline development. Ban-song-pleuy School had 9 topics of instructional innovation in reading for comprehension.

The findings of teachers' teaching behavior showed that the teachers' behaviors changed, as the teachers gave importance to preparing students more than before. Every school used the Contemplative Education at least 15-20 min before class. The teachers collaborated in planning and designing the Contemplative Education Activity to be appropriate with students in each class. The teachers all agreed that the Contemplative Education Activity helped the students to concentrate on learning. As a result, the students were interested in and concentrated on learning especially in early childhood. The students were interested in the activity for a longer period of time.

The findings of satisfaction on the model for developing professional learning community in schools showed that the teachers had satisfaction in every item. It was at "High" level. The highest level of mean value was for item 4: Contemplative Education Activity Management for developing students' internal intelligence. The students' satisfaction was at the highest level. The lowest level of mean value was or item 14: teaching innovation for students' learning.

The findings of teachers' collaboration and shared work experience, according to synthesized information showed that the teachers collaborated in instructional work, teaching, discussion, informal reflection of small group working every day, and experience sharing every week. When teachers had their opportunity to discuss their learning and teaching, they had successful ideas and experience as self-development from their colleagues.

DISCUSSION

The teachers in all of the 3 schools had knowledge in development findings of model for developing professional learning community in primary schools.

The model for developing the professional learning community in primary schools consisted of 4 major factors and 11 sub-factors as follows: 1) preparation for learning included 2 sub-factors- preparation of internal school environment, and development of organizational culture for facilitating the learning; 2) development of shared value and vision included 2 sub-factors - students' learning and school staffs' shared learning by using the

PLC process; 3) learning from shared work practice included 3 sub-factors-teacher group's shared learning, development of shared learning process, and the AAR (After action review) : shared success in school; 4) the expected outcome included 4 sub-factors- teachers' knowledge and comprehension of learning community development, teachers' teaching innovation, students' learning performance, and friendship in school. The experts' evaluative findings were in the highest level of propriety in all of the 3 schools.

The researcher systematically implemented it according to academic principle using Participatory Action Research. The researcher, administrators and teachers collaborated in implementing it based on 6 steps: the study of rationale and approach in learning community development, teaching professional approach, model for developing the learning community of sampled school, the study of current situation and need for developing the Professional Learning Community by seeking the opinion of administrators and teachers in the schools under the jurisdiction of The Office of Basic Education Commission. Consequently, the information related to every division was obtained thoroughly as real data. The process for determining the model for developing the professional learning community was determined from quality as well as real basic information of area school. It was supported by research findings of Jirapon (2009) in "Development of Teachers' Team Working in Secondary School through 6 Steps of research process." It was found that the model of team work development in school was in "the highest" level of propriety. In addition, it was congruent with research findings of Pantong (2013) in "Teachers' model development for students in school, under the office of primary educational service area. 3 phases were implemented. Phase 1, the characteristic and technique of teacher development for students was studied. Phase 2, the model for developing teacher for students in school was constructed. Phase 3, the model was evaluated for its feasibility and utility. The research findings showed that the model had its feasibility to be used in practice in "High" level. Besides, its utility was in the "highest" level.

The rationale and basic approach for developing professional learning community was appropriate and congruent with guidelines for developing professional learning community. The researcher synthesized the academics congruent approaches in constructing professional learning community. The factors used as a framework in constructing the model consisted of 5 factors: the common norm and value, determination of common goal towards students' learning, collaboration in suggesting practice, and the reflection of performance practice (Intanam, 2010). Moreover, the approaches from field trip at Lam-play-mad Pattana School with best practice in developing the learning community were the frameworks for model development; they include the following: learning organization was prepared by

arranging the environmental condition in school, and developing the organizational culture for facilitating learning as well as using the school staffs' cooperative learning through PLC process. They include the experience simulation, expectation sharing, successful experience sharing, and future anticipation to determine the factors of model for developing professional learning community of this study. Consequently, the determined model included utility as well as concrete form. It was supported by Thaibung (2011)'s approach in "Teacher's Model Development". The stages for teachers' potentiality expression, and learning by discussion were established regularly. The factors of model in professional learning community consisted of factor of reflecting on work practice.

The developed model for developing the professional learning community was congruent with the current situation and need for developing the professional learning community in each schools.

The teachers in all of the 3 schools had 66.67% and above knowledge and comprehension in developing professional learning community. In addition, they were competent in developing professional learning community; they were in the "Highest" level. The researcher sent the teachers to participate in training and field trip at Lam-plai-mad Paattana School. This is congruent with the approach for teachers' empowerment of Erawan (2005) in "Model Development for Teacher's Empowerment." It was found that the factors for teachers' empowerment was to increase the channel for teachers to obtain their bargaining power by discussion in order to decrease conflict, understand each other, develop their new knowledge and skills, and team work development in learning substance level.

Every teacher had one instructional innovation of model for developing the Professional Learning Community, at least 1 topic for each one. The teachers had changed their instructional management behavior. They used Contemplative Education before the lesson. They collaborated in planning and designing the instructional activity. They cooperated in reflecting as well as improving and correcting the instruction. It might be because they obtained self-development by training and field trip study at Lam-plai-mad Pattana School. The teachers were given examples from problem based teaching; taught Thai Language teaching through literary work as well as 3 teaching steps: Chong, Cheum, and Chai. Furthermore, they viewed the samples from instructional innovation, performance from practice in real situation by teachers at Lam-plai-mad Pattana School. When the teachers adjusted their knowledge in school systematically based on model for developing professional learning community and were given advice by researcher, they made plan together and reflected their teaching performance as well as shared their experience and performance with each other. As a result, they obtained teaching innovation and changed their

teaching behavior. It is congruent with professional learning community of Panich (2010: 133-136)'s suggestions that the professional learning community was the instrument for teachers to get together in community, take role as transformational leadership, move changes for learning reform, reinforce with each other from both inside and outside, free themselves from power relationship to horizontal relationship, get together into group to share issue one is interested in educational development of professional learning community as action research cycle in order to inquire and search for knowledge as well as work continuously.

The finding on the teachers' satisfaction with the model for developing the Professional Learning Community showed that the teachers' satisfaction in every item was in "High" level. The item with the highest level of mean value was item 4. The teachers obtained self-development from work practice providing the concrete findings. The important thing was that the teachers could collaborate in making plan. They took turn to be leaders and followers. They were recognized by their colleagues in developing the work they were responsible for. In addition, they disseminated performances. So, they were proud and satisfied with the model for developing professional learning community.

The findings of study in teachers' collaboration and shared work experience showed that they cooperated in doing their instructional work, planning, discussing, reflecting the small group work informally every day, experience sharing their experience and success every week. It was supported by the development of Professional Learning Community by many academics related to teachers' development; teachers' potentiality was used for work development. Panich (2010: 13-136) concluded the characteristic of professional learning community. They moved the changes of internal reform. Moreover, it was the teachers' instrument for practicing by themselves. It freed the teachers from power relationship into the horizontal relationship for collaborating in making changes to education as well as teachers' creative working; it brought learning management experience such as PBL and other kinds of innovation experimented by them to share for knowledge construction or upgrading their work knowledge from direct experience.

RECOMMENDATIONS

Recommendations for applying the research findings

There are interesting findings regarding developing the model for professional learning community. It was not only based on theoretical approach, but also the application of model with best practice as framework for model development. As a result, the model with feasibility and utility in work development was obtained. Therefore,

the work units or persons who were interested in model development would use this finding as a guideline for developing the model as well.

The research findings of this study indicated that professional learning community in schools is the guideline which could help teachers for self-development. Since the teachers' potentiality is to develop each other, they do not have to go out of the school for development. Consequently, the work unit responsible for teachers' development should study and adjust this finding.

This research is PAR research based on cooperative learning at "Research Area" between the researcher and teachers. Both sides had to collaborate with each other, respect knowledge and experience. This research process indicated that the process in developing quality based on model for creating learning community occurred by learning and working together with outsiders as well as persons in the organization. If the development process is from top to bottom, that development would not be successful in the long run. Therefore, the quality process development based on the model for developing the learning community must be in line with this issue.

According to the model development process for developing professional learning community, teachers' development technique could be applied as follows:

1. The teacher group was a small community based on hierarchy and learning substance. The teachers had opportunity to discuss their instruction more.
2. For conferences to be efficient, they have to decrease the formal climate as much as possible, like "informal talk."
3. The development of enthusiasm and confidence in teachers' working indicated a good point.
4. The communication pattern of school staff was to talk or discuss regularly in small group based on learning substance.

Recommendations for future research

1. The development of professional learning community is a guideline for developing teachers to manage their instructional duty with quality, since the teachers can use their potentiality to develop each other.
2. Other processes than can develop professional learning community, should be studied.
3. The comparative study of professional learning community between the government school and private school should be studied.
4. The research study of development in educational supervision model by using PAR in each school under the educational service area should be conducted.

Conflict of Interests

The authors have not declared any conflicts of interest.

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Full Length Research Paper

Perception of teaching as a profession and UB teacher trainees' attitude towards training programme and teaching

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Though the professionalism of teaching is still a debatable issue, teaching provides an indispensable service to every society and civilization. The service provided by teaching seems to be more indispensable to any society than services provided by any other profession. To those that teach, the way they perceive themselves and the value of their services tend to make a lot of difference. The study looked at the influence that such perception by teacher trainees in UB has on their attitude towards their training programme (TTP) as well as towards teaching generally. A statistical analysis of data from a quantitative survey of 73 UB teacher trainees with a 54 closed-ended validated Likert-type items showed that in the perception of UB teacher trainees, teaching is a profession and this view is significantly stronger among female than male teacher trainees. Their level of perception of teaching as a profession has significant influence on their motivation to do well in their teacher training programme (TTP); attitude towards their teacher training programme (AtTTP), the value they attached to the programme (VaTTP); and their perception of the effectiveness of the programme (ETTP). Similarly, the level to which they perceived teaching as a profession has a significantly positive influence on their willingness to teach (WtT); attitude toward teaching (AtT) and the level to which they perceive teaching as a stereotypes career (STC). Generally, the higher their perception of teaching as a profession, the higher is their attitude towards their TTP as well as towards teaching in general. The findings were discussed, implications drawn and recommendations made.

Key words: Professionalism of education, teacher training, teacher training, attitude towards teaching, University of Botswana (UB), Botswana.

INTRODUCTION

Teaching provides an indispensable service to every society and civilization. The service provided by teaching seems to be more indispensable to any society than services provided by any other profession. In many

respect the teaching profession is a nation builder and sometimes it is referred as the mother of all professions. It is given such accolade through its ability to produce well rounded individuals who will in turn promote best

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practices, unlock many doors for our prosperity and attract much needed international investment and expertise. The Botswana Government also recognizes this in the white paper (1994),

The success of any education system depends largely on teachers. They are the catalyst of the learning process and on them mainly rests the whole system. They are therefore crucial in the strategy to achieve a more effective and responsive education system (p.4).

Teaching has been dubbed the mother of all professions and history has confirmed this over the centuries. In Botswana in particular, teaching was the main profession at independence in 1966, no wonder the Botswana Cabinet then consisted largely of teachers. Overtime however, varying professions nurtured by teaching proliferated, organized themselves, and bargained for superior conditions (Tau, 2014). As a result of the modesty of teachers and the otherwise sluggish response to the referred developments, the teaching profession has arguably lost the respect, reverence and dignity it was associated with in the earlier years. More often, the public hardly talk of any well-defined and widely accepted ethics of the teaching profession that would have otherwise galvanized the teachers. Consequently teachers have lost grip on the struggle to determine their destiny.

According to the British Department of Education (2010),

The first, and most important, lesson is that no education system can be better than the quality of its teachers. The most successful countries, from the Far East to Scandinavia, are those where teaching has the highest status as a profession; South Korea recruits from their top 5 per cent of graduates and Finland from the top 10 per cent (p. 3)

Background

Professionalism and attitude towards teaching

Professionals including teaching fraternity need to be equipped with the knowledge, skills, and attitudes needed to enhance learning in a fast changing environment. According to Desimone (2009), professionals in teaching should evolve over research which lead to a more thorough understanding of the factors that contribute to effective teacher professional development and effective education, like: (1) research on teachers' knowledge of, skills in, and attitudes towards formal and informal collaborative, inquiry based, and contextualized education; (2) development and evaluation of programs, interventions, and tools that foster collaborative, inquiry based, and

contextualized learning, with a specific focus on teacher performance and the effects of this performance on students' learning. Thus, in order to stimulate and assess effective professional development (in terms of knowledge, skills, and attitudes) and its impact on, for instance, students' knowledge acquisition, creative or inquiry thinking, or attitudes and motivations, these concepts first need to be well defined and elaborated on (ELAN, 2014).

Among the factors that make teaching a profession are autonomous and trust. That is, teaching is an autonomous profession because it is concerned with the effects of central control on teachers' professionalism. The second factor, teaching as a trusted profession as it combines statements about trust, integrity, and the desirability of having an influential and independent professional body for all teachers, with those teachers evaluating their work, using their professional judgment and directing other staff in the classroom (Hargreaves et al., 2006). Mainly through case studies, teachers are also involved in creating the knowledge that drives their functioning as professionals.

Teachers' professional knowledge and actual practices may differ not only among countries but also among teachers within a country. To gain an understanding of the prevalence of certain beliefs and practices it is therefore important to examine how they relate to the characteristics of teachers and classrooms. It is even more relevant to look at the impact on teachers' beliefs, practices and attitudes of professional background factors such as type of training, certification and professional development, subject taught, employment status (part-time versus full-time) and length of tenure. It is important to note that any of these relationships can have different causal interpretations (OECD, 2009).

Explicitly, true contribution to the advancement of theory and practice of teacher professional development, is better guided by combination of different parts (1) how do professionals learn, what constitutes teachers' attitudes towards education or inquiry learning; (2) The development, implementation, and evaluation of new interventions (e.g., which interventions, methods, or tools have the desired effects on both teachers and learners); (3) The development and validation of a variety of measurement instruments and methods that assess pedagogical content knowledge, skills, and attitudes of both teachers and students (ELAN, 2014). This study tackles teacher trainees' aspect of this task in terms of attitude towards their training programme and teaching itself.

Problem of the study

To all professionals, the way they perceive themselves

and the value of their services tend to influence their efficiency and hence productivity. For teachers, such perception is influenced by the views of the public about teaching. A teacher tends to be psychologically handicapped by public perception of the value of his/her service. Teachers tend to be humbled by the psychological pressure put on them by the feeling that, despite their irreplaceable service, their career is not regarded as a profession by the public. According to Nenty (2010), pressure emanating from negative views from the public of teaching as a career by the society tends to reduce the amount of affective and cognitive investments on teaching and learning by teachers and teacher trainees. Such views tend to kill the aspiration and inspirational stamina of teachers. A situational analysis of Botswana education system has noted that there is a challenge of poor quality teachers, as practicing teachers do not get equitable treatment when it comes to teacher training and professional development (Kgalemang, 2015). The situation needs urgent attention. The report indicates that the issue is compounded by inadequate provision of teacher training related to the new curriculum resulting in teachers often not being in a good position to implement the curriculum properly. This is an immense challenge which reflects that teaching profession in Botswana within the context of the teacher developments. As an attempt to address the challenge, it is important to investigate into teaching as a profession as perceived by teacher trainees.

Purpose of the study

Taking the account the problem identified, this study aims at determining the extent to which UB education students deem teaching as a profession and the influence such perception has on teaching.

Research questions

The study is tasked to find answers to the following research questions:

1. To what extent do the UB teacher trainees perceive teaching as a profession?
2. To what extent do UB teacher trainees' perception of teaching as a profession influences their attitude towards their training programme and teaching?

Research hypotheses

To answer these research questions, the following null hypothesis were tested:

1. UB teacher trainees do not significantly perceive

teaching to be a profession.

2. There is no significant gender influence in the level to which teachers perceived teaching as a profession.
3. The level to which teacher trainees' perceive teaching as a profession does not significantly influence their:

- (i) motivation to achieve in teacher training programme.
- (ii) attitude towards teacher training programme.
- (iii) value for their teacher training programme.
- iv). perception of the effectiveness of the teacher training programme
- (v). their willingness to teach.
- vi) attitude towards teaching.
- vii).the level to which they perceive teaching as a stereotyped career.

REVIEW OF LITERATURE

Teaching as a profession has been studied at different perspective. Hargreaves et al. (2006) studied the teachers, trainee teachers and other associated groups who responded to a questionnaires on the teacher status which had a number of special features, including the range of perspectives on status that it has investigated, and the way in which it has attempted to find a definition of high professional status, and used that to examine perceptions of the status of the teaching profession. It showed that there are still large differences between the teaching profession and those professions judged to have high status in terms of reward and respect and as control and regulation. Teachers, trainee teachers and associated groups see the teaching profession as virtually on a par with a high status profession in terms of the training, responsibility and performance that teaching requires.

Peter and Peter (2011) carried out an interview-based qualitative study in Malawi concerning with the recruitment of secondary teachers. The study revealed a range of perspectives for pursuing a teacher training course: failure to follow a desired career, springboard to other careers, to upgrade, and teaching out of vocation. It also showed that trainee teachers held a range of images about teaching: its ability to enhance knowledge; low pay with no incentives, low status profession, and lack of trust of male trainee teachers. They then made some recommendation among is that teacher educators and policy makers need to consider the perspectives of trainer teachers to reduce resource wastage and support trainee teachers appropriately.

Babu and Raju (2013) conducted a study to examine the attitude of student teachers towards their profession. The study was conducted on a sample of 437 student teachers studying in 7 colleges of education in Vizianagaram District (India) among them 239 were

males and 198 females and methodology wise 143 were in mathematics, 48 physical sciences, 134 biological sciences and 112 social studies subject student teachers. They were administered self-constructed tool (teachers attitude) developed by the investigators. The tool consisting of 60 items with 7 areas viz. professional problems, teachers' pay scales, vacancies and other privileges, nature of work and workload, teachers interest towards pupils, teachers attitude towards management and professional status of teachers.

The collected data were analyzed for the mean and standard deviations, and t-test analysis was done to tests various hypotheses. Significant gender differences as well as differences across subjects were observed. Male and female student teachers were differed significantly in attitude towards the teaching profession. Male and female student teachers were differed significantly in the areas of professional problems, teachers' pay scales, vacations and other privileges, teachers' interest towards pupils, teachers' attitude towards management and professional status of teachers in their attitude towards the teaching profession. Student teachers belong to different subjects differed significantly in their attitude towards teaching (Babu and Raju, 2013).

In another study focused on the views of the 58 teacher trainees who have recently started the teaching profession on teacher training process. The purpose of the study is to evaluate the views of the teacher trainees on the process of teacher training in Turkey. The findings of the study revealed that the teacher trainees felt insufficient especially related to curriculum and content knowledge and that teaching practice and school experience courses do not adequately contribute to their profession (Oguz et al., 2013).

In another study, Marina-Stefania et al. (2011) dealt with path analysis study using data from a longitudinal study investigating the experiences of trainee and early career phase teachers in England. The data were generated via self-complete questionnaires and follow-up telephone interviews with 1,322 trainees. Those on undergraduate or school-based programmes felt better prepared to work as teachers than one-year postgraduate trainees, perhaps because the former give higher ratings of the quality of assessment of, and feedback received on, teaching practice, and because of the clarity of theory-practice links in programmes.

Across different kinds of initial teacher preparation (ITP) programme revealed a good relationships with school-based mentors significantly boosted trainees' confidence that their ITP had effectively prepared them for teaching. Trainees' motives for entering the profession and their initial concerns about and expectations of ITP also affected their perceptions of its effectiveness, by shaping the way they experienced aspects of their courses. Implications of these findings for policy and

practice in teacher preparation are discussed (Marina-Stefania et al., 2011).

Sahayarani and Stanly (2014) study aimed at identify the attitude towards teaching profession of B.Ed. trainees and difference between the sub-samples of the students in respect of their attitude towards teaching profession. The investigators have randomly selected 104 students from four different colleges of education in Pondicherry as sample. Results revealed significant different in attitude towards teaching profession in the sub-categories sex, subject and locality. They concluded that the attitudinal change towards teaching should be the focus point in the teacher training programmes.

METHODOLOGY

This is a survey inferential study in design conducted to capture and analyzed the perceptions of University of Botswana, education students regarding teaching as a profession. Data were randomly collected from total of 73 education students toward the end of second semester 2014/2015. Out of the sampled 73 students, 38 were Post graduate Diploma in Education (PGDE) and while 34 were Bachelor of Education students. One participant failed to indicate his/her academic status. Among them were 57 females and 16 males without specified sampling frame.

Questionnaire was used to collect data. It is consisted of two parts. The first part- Part I had five items demanded for the demographic information of students. Part II with 53 Likert-type items with six options – from 'very strongly agree' through 'very strongly disagree' – was developed. Additional two items were included to demand students to state his or her overall grade in the last semester and the expected grade at the end of the next semester. Face-validated of items was by three colleagues in the area of assessment. Thus looked into every item to find out whether they were measuring what it supposed to measure in relation to the operationalized indicators of students perception to teaching as a professional. Negatively worded items were scored in the reverse direction. A Cronbach alpha analysis of the reliability of the measurement of the variables involved in the study showed that for motivation to achieve in teacher training programme with 3 items, alpha was .408; attitude toward teacher training programme with 10 items, alpha was .869; value of teacher training programme with 6 items, alpha was .501; willingness to teach with 13 items, alpha was .718; attitude towards teaching with 4 items, alpha was .589 and effectiveness of the training programme with 5 items, alpha was .603. These are acceptable reliable coefficients that indicate that the instrument is reliable hence it can be used to collect data.

ANALYSIS OF DATA AND INTERPRETATION OF THE RESULTS

The data collected for each hypothesis were analyzed using the statistical Package of the Social Science (SPSS) version 21. The first null hypothesis, dealt with the perception of students' teacher towards professionalism that was UB teacher trainees do not significantly perceives teaching to be a profession. In an attempt of answering this null hypothesis a one sample t-test was done. That is comparison between a single mean of the sample with the sample population mean. The finding ($M = 26.94$, $SD = 4.90$, $n = 55$) revealed that

Table 1. One Sample t- test analysis of UB teacher trainees perceived teaching as a profession.

Variable	μ	Observed mean	Std. Dev.	Mean Diff.	SEM	df	t	Sig. (2-tailed)
Professionalism of teaching	21.00	26.946	4.904	5.945	.661	54	8.991	.000

in a t- value of $t(54) = 8.991$, $p < .000$, hence the null hypothesis was rejected and the alternative hypothesis (see Table 1) was retained. This implies that teacher trainees significantly perceive teaching as a profession (Table 1).

When it came to gender influence on the level to which teachers perceived teaching as a profession, an independent t-test analysis done to test the second hypothesis showed that females ($M = 27.63$, $SD = 4.59$) significantly ($t = 2.45$, $df = 53$, $p = .018$) more than males ($M = 23.44$, $SD = 5.24$) perceive teaching as a profession. So there is a significant gender influence in the level to which UB teacher trainees perceive teaching as a profession. Females perceive teaching as a profession significantly more than males.

The rest of the six null hypotheses were together posited that the level to which UB teacher trainee perceive teaching as a professional does not significantly influence their (1) Motivation to achieve in teacher training programme, (2) attitude toward teacher training programme, (3) value of teacher training programme, (4) willingness to teach, (5) attitude towards teaching and (6) effectiveness of the training programme. In answering of all the six hypotheses, one way analysis of variance were conducted test dependent variables against independence variable in which UB teacher trainees perceive teaching as a profession (Table 2). A One- way ANOVA was considered suitable for the analysis because the six dependent variables were measured at the interval level, whereas the independent variable, level to which UB teacher trainees perceived teaching as a professional, was categorical with three levels.

For the first dependent variable on the list, perceived level of motivation to achieve in teacher training programme, the ANOVA showed significant ($F = 5.87$, $p < .005$) result. This implies that of the level to which UB teacher trainees perceive teaching as being a profession significantly influences their motivation to achieve in the teacher training programme (TTP). The significant of the F-value led to a post hoc analysis using least significant difference (LSD) method. It was found that teacher trainees with high level of perception of teaching as a profession differed significantly ($p < .004$) in their motivation to achieve in their training programme from those with average and low level of perception of teaching as a profession. In other words, the more UB

teacher trainees perceive teaching as a profession the more is he/she is motivated to succeed in their TTP

For attitude towards the teacher trainee programme, the analysis revealed a significant influence ($F = 5.53$, $p < .007$) of the level to which teaching is perceived as being a profession on the attitude towards the teacher trainee programme. This led to rejecting the null hypothesis and retaining the alternative hypothesis, thus the level to which teacher trainees' perceive teaching as a profession does significantly influence their attitude towards teacher training programme. The significance of the F-value prompted a post hoc (LSD) analysis which showed that teacher trainees with high level of perception of teaching as a profession differed significantly ($p < .002$) from those who had an average and a low level of perception of teaching as a profession in their attitude towards teacher training programme respectively. Generally, the analyses revealed that the higher the level of perception of teaching as a profession, the more favourable the attitude towards the teacher training programme is. That is to say, the more a UB teacher trainee perceives teaching as a profession the more favourable is his/her attitude towards their TTP

For the value of the teacher trainee programme, the analysis again showed significant influence ($F = 7.51$, $p < .001$) of the level to which teaching is perceived as being a profession on the value teacher trainees attached to their training programme. Given the significance of the F-value, a post hoc analysis using the LSD method was done. This analysis showed that those with high level of perception of teaching as a profession differed significantly ($p < .000$) from those who perceive average and low level of perception of teaching as a profession in the value they attached to their teacher trainee programme. The general trend showed that the higher the level of perception of teaching as a profession, the higher the value the teacher trainees attached to their training programme. In other words, the more a UB teacher trainee perceives teaching as a profession the more valuable he/she sees their TTP.

In the case of effectiveness of their training programme, the analysis showed significant ($F = 15.49$, $p < .000$) influence of the level to which teaching is perceived as being a profession on their perception of the effectiveness of the training programme. Given the significant F-value, a post hoc analysis using the LSD

Table 2. One-way Analysis of Variance (ANOVA) of the Influence of UB Teacher Trainees' Perception towards Teaching as a Profession on Attitude Towards Training Programme and Teaching.

Variable	Perceived level of teaching profession	n	\bar{x}	SD	SE	Source of variation	SS	df	MS	F	Sig.
Motivation Achieve to	Low	21	14.90	2.36	.516	Between Groups	39.57	2	19.78	5.87	.005
	Average	26	16.19	1.63	.319	Within Groups	212.37	63	3.37		
	High	19	16.84	1.38	.318	Total	251.94	65			
	Total	66	15.97	1.967	.242						
Attitude towards programme	Low	20	44.45	7.67	1.716	Between Groups	573.09	2	286.59	5.53	.007
	Average	24	48.46	7.40	1.510	Within Groups	2745.17	53	51.80		
	High	12	53.83	5.02	1.450	Total	3318.14	55			
	Total	56	48.18	7.77	1.038						
Value programme of	Low	21	26.95	4.07	.888	Between Groups	215.69	2	107.85	7.51	.001
	Average	26	28.46	3.98	.781	Within Group	847.15	59	14.36		
	High	15	31.87	2.92	.755	Total	1062.84	61			
	Total	62	28.77	4.17	.530						
Effectiveness of Programme	Low	21	20.76	3.68	.804	Between Groups	390.29	2	195.15	15.49	.000
	Average	26	24.88	3.79	.743	Within Groups	806.21	64	12.60		
	High	20	26.75	3.04	.680	Total	1196.51	66			
	Total	67	24.15	4.26	.520						
Willingness to Teach	Low	21	55.38	6.71	1.465	Between Groups	1308.98	2	654.49	19.75	.000
	Average	20	63.10	5.08	1.135	Within Groups	1789.69	54	33.14		
	High	16	66.94	5.16	1.289	Total	3098.67	56			
	Total	57	61.33	7.44	.985						
Attitude towards Teaching	Low	22	16.86	2.82	.600	Between Groups	144.44	2	72.22	6.08	.004
	Average	24	18.25	3.93	.801	Within Groups	748.04	63	11.87		
	High	20	20.55	3.46	.773	Total	892.49	65			
	Total	66	18.48	3.71	.456						

Table 2. cont'd.

Perceived level of teaching as stereotyped	Low	21	10.71	1.65	.360	Between Groups	129.586	2	64.79	7.48	.001
	Average	28	12.53	3.45	.651	Within Groups	563.355	65	8.67		
	High	19	14.32	3.23	.742						
	Total	68	12.47	3.22	.390	Total	692.94	67			

method was done. This analysis showed that those with high level of perception of teaching as a profession perceived their training programme significantly ($p < .000$) more effective than those with average and low level of perception. Similarly, those with average level of perception of teaching as a profession also differed significantly with those with low perception. Generally, the trend showed that the higher the level of perception of teaching as a profession, the higher the perception of the teacher trainees as being effective. That is to say, the more a UB teacher trainee perceives teaching as a profession the more effective he/she perceives their TTP to be.

For willingness to teach, the analysis showed significant ($F = 19.75, p < .000$) influence of the level to which teaching is perceived as being a profession on willingness to teach. Given the significant of the F-value, a post hoc analysis using the LSD method was done. This analysis revealed high level of teaching as a profession differed significantly ($p < .001$) with those who perceive average and low level of teaching as profession in their perception of the willingness to teach respectively. Generally, the analyses revealed that the higher the level of perception of teaching as a profession, the higher the willingness to teach.

For attitude towards teaching the analysis resulted in a significant F value ($F = 6.08, p < .004$) which led to rejection of the null hypothesis. In other words, it implies that the level to which teacher trainees' perceive teaching as a profession has a significant influence their attitude towards teaching. The significant of the F-value prompted LSD analysis which showed high level of teaching as a profession differed ($p < .002$) with those who perceive average and low level of teaching as profession in their perception of attitude towards teaching. Thus the analysis showed that the higher the level of perception of teaching as a profession, the higher the favourable attitude to teaching.

Lastly, for the perceived level to which teaching is stereotyped, the analysis showed significant ($F = 7.48, p < .001$) influence of the level to which teaching is perceived as being profession on the perceived level to which teaching is stereotyped. Given the significant of the F-

value, a post hoc analysis using the LSD method was done. This analysis showed that teacher trainees who have a high level of perception of teaching as a profession differed significantly ($p < .001$) with those who have an average and low perception of teaching as a profession in their perception of teaching as a stereotyped career. Generally, the analyses revealed that the higher the level of perception of teaching as a profession, the higher its perception as a stereotyped career.

Summary of findings

The findings of the study showed that in the perception of UB teacher trainees, teaching is a profession and this view is significantly stronger among female than male teacher trainees. Their level of perception of teaching as a profession has significant influence on their motivation to do well in their teacher training programme (TTP); attitude towards their teacher training programme (AtTTP), the value they attached to the programme (VaTTP); and their perception of the effectiveness of the programme (ETTP). Similarly, the level to which they perceived teaching as a profession has a significantly positive influence on their willingness to teach (WtT); attitude toward teaching (AtT) and the level to which they perceive teaching as a stereotypes career (STC). Generally, the higher their perception of teaching as a profession, the higher is their attitude towards their teacher training programme as well as towards teaching.

DISCUSSION AND RECOMMENDATIONS

Considering teaching as a profession by teacher trainees, it is an imperative perception which enriches psychologically the working environment for a teacher. It boosts teachers' cognitive ability and affective disposition which empowers improvement through innovative teaching and learning by teacher trainers and the teacher trainees. Given a conducive psychological environmental afforded other careers as professions, teachers will be seen as

exhibiting specialized skills in the development of human resource for the betterment of our society. The findings of this study corroborated that of Hargreaves et al. (2006) who examined the perceptions of the status of the teaching profession and revealed large differences between the teaching profession and those professions judged to have high status in terms of reward and respect and as control and regulation. Teachers, trainee teachers and associated groups saw the teaching profession as virtually on a par with a high status profession in terms of the training, responsibility and performance that teaching requires.

The Botswana government white paper (Botswana Government, 1994) view the success of any education system to depend largely on teachers. This bolsters the feeling expressed in this study by UB teacher trainees that teaching is an important profession. According to the white paper, teachers are the catalyst of the learning process and mainly on them rest the whole education system. Education holds the future of every nation, every society, none of which can rise above the quality of its education system. Such feeling underlie the value they have for their teacher training programme. They are motivated by their programme to develop highly favourable attitude towards teaching and a high level of willingness to teach. These are crucial measures which every teacher has to possess in order to achieve as professionals and hence enhance the standing of the profession. This can be attained only through an effective teacher training programme which the UB teacher trainees claim theirs is. As attested by Marina-Stefania et al. (2011)'s findings, good relationships with school-based mentors significantly boosted trainees' confidence and engender the feeling that their initial teacher preparation had effectively prepared them for teaching. If teacher training programme is effective, it bring along teaching as a trusted profession as it combines statements about trust, integrity, and the desirability of having an influential and independent professional body for all teachers, with those teachers evaluating their work, using their professional judgment and directing other staff in the classroom (Hargreaves et al., 2006).

Attitude of students towards teacher training programme was found to be significantly favourable especially for those who reported favourable perception of teaching as a profession. This implies that people who are recruited into the profession by UB perceive teaching as a profession and have very good attitude towards it. This tends to boost their joy and ignite some feelings of pride about being teachers. This is why, as it was found, they are highly willing to teach. With this type of feeling they are more likely than not to be productive as teachers. However the findings of a previous qualitative study by Peter and Peter (2011) were contrary to some of those in the current study which revealed that teacher trainees

recruited perceive a range of perspectives for pursuing a teacher training course. These include: failure at joining a desired career, enrolling in teacher training programme as a springboard to other careers, or as a means of self-upgrading, and teaching out of vocation. It also showed that trainee teachers held a range of images about teaching: its ability to enhance knowledge; low pay with no incentives, low status profession, and lack of trust of male trainee teachers. Despite these contrary findings, teaching as a profession like many philosophers put it, that remains the mother of all professions.

Given UB teacher trainees, the findings of this study are reassuring and tend to deflate the problem of teachers being 'psychologically handicapped by public perception of the value of their services' which was the concern of the study, to begin with. In the first place, UB teacher trainees do not agree with the public view that teaching is not a profession and the implications of this do not seem to have any influence on their professional development, their emotional feelings about their training programme and about teaching in general.

Following these, UB and other teacher educators and policy makers need to embrace the qualities of effective teacher training geared towards professional development for effective education. This calls for educating teacher trainees not only cognitively, but more also behaviourally, affectively or emotionally to develop some level of psychological robustness against emotional side-attractions that may impair their determination to imbibe the characteristics of good professionals.

Conflict of Interests

The authors have not declared any conflicts of interest.

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Full Length Research Paper

Development of web-based learning environment model to enhance cognitive skills for undergraduate students in the field of electrical engineering

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This research aimed to develop a web-based learning environment model for enhancing cognitive skills of undergraduate students in the field of electrical engineering. The research is divided into 4 phases: 1) investigating the current status and requirements of web-based learning environment models. 2) developing a web-based learning environment model. 3) reporting the results of the web-based learning environment model from. 4) validation of a web-based learning environment model and its role in the development of cognitive skills of the students. The results revealed the following: 1) the current status and requirements of a web-based learning environment model revealed that the model can be expressed in aspects of its structure, web-based instruction and web-based instruction for developing cognitive based skills. Its current operating status is at a moderate level, and the user's requirement is at the highest level. 2) The developed web-based learning environment model consists of 4 main elements: principles, objectives, processes and activities, and the measurement and the evaluation of three sub-elements: web-based learning environment, web-based learning and development of cognitive skills. The web-based learning environment consists of 4 elements: introduction to the context, data sources, instruments, and base of help. Web-based learning consists of 3 elements: lessons, communication, and activities. In term of the development of cognitive skills, there are 4 elements: encouragement of cognitive structure, encouragement of cognitive balance, encouragement of the expansion of cognitive structure, and encouragement and support of knowledge construction. 3) The results of model implementation efficiency: The students who studied by using the developed web-based learning environment model received pre-and post-points of – achievement (52.37 and 92.40%). The learning achievement and the cognitive skills increased at the .01 statistical significant level. Learning achievement was related to the cognitive skills at the .01 statistical significant level. The more points students earned on their achievement, the more points they received on their cognitive skills evaluation. The mean value of an overview of all aspects and each individual aspect of undergraduate students' satisfaction towards the model was at a high level. 4) An overview of all aspects and each individual aspect of the quality evaluation model evaluated by the experts was at the highest level. It could be assumed that the web-based learning environment model had its quality at the highest level and persons concerned could used it as a pedagogical tool for undergraduate students.

Key words: Web-based learning environment, cognitive skills.

INTRODUCTION

In a world with so much technology advancement, cognitive skills are vital because they show how developed humans are. Cognitive skills are also important for living a life in the modern world as the more people with cognitive skills, the more harmonized the society is (Khaemmani et al., 2000). This is because cognitive skills are tools to enhance us all to keep pace with and enable us to solve problems appropriately. Understanding this aspect, scholars have been suggesting that cognitive skills be taught together with academic lessons. Cognitive skills are essential for education because they are something that can be practiced. Regularly solving problems will sharpen your brain, motivate you to view the problems from various perspectives, and the existing knowledge can be applied to tackle new problems. Presently, it is believed that education teaches people how to think. Cognitive skills produce students, the product of education, with quality by teaching them cognitive skills together with academic lessons in class (Mapranit, 1996; Luang, 1992).

Higher education institutes today under the higher education standard have shifted the focus to the desirable qualifications of their graduates. Some of them have established a learning standard that mirrors cognitive skills as one of the desirable qualifications of the graduates. To explain, a graduate needs to have satisfying cognitive skills and be able to integrate, research, analyze, and summarize the problems, and solve them systematically. The students are also expected to utilize the available data to make an effective decision, be imaginative, and flexible to properly apply their knowledge to develop innovations or extend the knowledge beyond their current capacity in a creative manner. More important, it is desirable that they be able to research for new knowledge on their own for the goal of lifelong learning and to keep pace with the ever changing body of knowledge and new technology (The Council of Engineering Deans of Thailand, 2009).

Today, higher education institutes offer a wide range of education systems. Some teach students in the traditional way in classroom while others have introduced more advanced technologies. Education in the engineering field focuses on producing graduates with theoretical and practical knowledge, enabling them to think, analyze, and synthesize systematically, and apply the knowledge appropriately, for further studies and for being brought to the labor market in the industrial sector. The purpose of education to equip people with the skills to live a happy life is highlighting the higher level skills or the task for technology users in a creative way. Such skills require

cognitive skills as the basics. Cognitive skills are important for learning: learners are able to logically apply their knowledge in real situations which are different from those they learned from school. Teachers have the responsibility to develop such skills for learners so that they have the tools for living a good life in the society. A person, who lacks cognitive skills, facing problems or challenges, will not be able to choose an appropriate solution. In contrast, those with cognitive skills will not be easily fooled and can solve problems better.

The solutions in the references indicated that “environment” plays an important role in learning and development of cognitive skills. Hannafin et al. (1999) presented the principles for designing a learning environment called Open Learning Environment: OLEs, with the focus on enhancing and developing divergent thinking, depends on each individual to give definition, set the intention to learn, specify the learning purpose, and create the learning activity. All these have to go in line with the design principles with student-centered learning where the ideas of each individual will be used to explain, define the meanings, and understand a situation. Students will learn from the actual contexts and their own interest using their own knowledge and experience to solve problems (Chaicharoen, 2003)

As mentioned above, it is seen that the cognitive skills development process is vital for improving, solving, and initiating the progress in all types of work and professions, as well as a living of everyone in the society. Academic institutes produce graduates to satisfy the needs of society and community. Electrical engineering is one of the most popular fields for continuing education after a vocational degree. It has been observed that the majority of applicants each year choose to study in electrical engineering. This may be because the students expect that after graduation, the degree in this field will earn them a good salary. To learn well in electrical engineering, the students should be knowledgeable and possess the desirable graduate qualifications as defined by the standard. The philosophy of electrical engineering says “aim to produce graduates who have both theoretical and practical knowledge, ability to analyze and synthesize, plan systematically, and ability to apply the knowledge appropriately.” Therefore, in order to produce the quality graduates as defined in the desirable qualifications of graduates, expected learning standard, and qualification framework of higher education in term of knowledge, it is necessary to provide a wider range of instruction, learning environment, and teaching methods that facilitates learning. Students are also expected to

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have the ability to do research, understand, and be able to process the data, experiment on new concepts and proofs from an extensive database, and apply the conclusions to solve many different problems and arguments without guidance from outside. They should be able to understand the complicated problems and suggest new and creative solutions considering relevant theoretical knowledge, practical experience, and the consequences of the decision made. The graduates should also be able to apply their skills and in-depth understandings in the academic field and professions related to their specialty.

They are expected to use the regular working process appropriately and identify the situations that require innovative solutions by also applying theoretical and practical knowledge to tackle the problems. Therefore, it is important that everyone involved plays a part in this development.

The researcher, as education personnel, realizes the importance of this and is interested in developing a model for web-based learning environment to develop cognitive skills for students in electrical engineering by using the network technology as the media to transfer the suggestions, workshop, and lesson content according to the cognitive skills development.

This will be used as a guideline for the learning process that focuses on students' learning lessons together with developing their cognitive skills, fundamentals of technology which will allow them to learn by themselves and transfer knowledge and experience in solving problems effectively. It is considered that students of this age are able to use the experiment tools and the research results will be used as the guideline for promoting and developing other abilities which will be useful for teaching in other fields of studies in higher education in the future.

Research objectives

This research aimed to,

1. investigate the current contexts and demand for a web-based learning environment to enhance cognitive skills for electrical engineering students
2. develop the web-based learning environment to enhance cognitive skills for electrical engineering students
3. investigate the result of using the web-based learning environment to enhance cognitive skills for electrical engineering students
4. confirm the web-based learning environment to enhance cognitive skills for electrical engineering students

METHODOLOGY

This research was meant for developing the web-based learning

environment to enhance cognitive skills for electrical engineering students. The research was divided into 4 phases of the research and development method as follows.

Phase 1: investigate the current contexts and demand for a web-based learning environment to enhance cognitive skills for electrical engineering students

Review literatures including related documents, books, research, frameworks, and theories such as 1) Open Learning Environments: OLEs, 2) Constructivist Learning Environments: CLEs, and 3) Situated Learning Environments: SLEs

Investigate the current implementation and the demand for web-based learning environment model to enhance cognitive skills from related parties. The possible research questions were administered on two sample groups from the Faculty of Engineering, Public University in the north-east of Thailand: lecturers (n=65) and students (n=180). The sampling was selected by fifty percent technique, including 33 lecturers and 90 students (123 persons in total).

Research tools

Document synthesis

The questionnaire consists of 2 phases: 1) the current implementation context with reliability of 0.825, discrimination index between .251 - .759, 2); the demand for the model for a web-based learning environment with reliability of 0.845, discrimination index between .442 - .745.

Data collection and analysis

All related documents, books, and research to form the model for a web-based learning environment to enhance cognitive skills for electrical engineering students were synthesized. To do this, the researcher used the synthetic record in the form of content analysis.

The current context and the demand for the web-based learning environment were surveyed. The researcher used a questionnaire created and qualified to collect the data from the sample group, analyze the data using basic statistics (such as average, percentage, and standard deviation).

Phase 2: develop the web-based learning environment to enhance cognitive skills for electrical engineering students

The web-based learning environment to enhance cognitive skills for electrical engineering students was developed. It started with the interviews of 9 experts to determine the elements of the model, including 3 educational technology and communication experts, 3 electrical engineering curriculum experts, and 3 teaching experts. The pilot model of the web-based learning environment to enhance cognitive skills for electrical engineering students was developed. The pilot model of the web-based learning environment to enhance cognitive skills for electrical engineering was evaluated by 5 qualified experts, including the qualifications with the minimum academic rank of associate professor and expert in educational technology and communication.

The web-based learning environment according to the principle, objectives, elements, procedure, and activity was developed. After that, the web-based learning environment was evaluated by the 9 experts before the experimental use with 30 electrical engineering students. The 30 sample students were chosen with simple random sampling from top, average, and bottom groups, 10 in each group, to find the effectiveness of the lesson from the criteria of 80/80.

Research tools

1. Interviews consisted of 6 topics: 1) infrastructure, 2) enabling contexts, 3) resources, 4) tools, 5) scaffolding, and 6) other suggestions
2. Pilot model evaluation form consisted of 1) related theories, 2) principles, 3) elements, 4) procedures, 5) web-based class activities, and 6) assessment.
3. Web-based learning environment/web-based lesson consisted of media content on the web and web-based learning environment
4. Cognitive skills evaluation form according to higher education's qualification standard in engineering consisted of 1) ability to think with cognitive skills, 2) ability to compile, research, analyze, and summarize the problems, 3) ability to think, analyze, and solve engineering issues, 4) imaginativeness and flexibility to apply knowledge, and 5) ability to research for data and additional knowledge
5. Learning achievement evaluation form consisted of difficulty index (P) between 0.20 – 0.80 and discrimination index of at least 0.20.

Data collection and analysis

Experts were interviewed. The data derived from the interviews were used to design the pilot model of the web-based learning environment to enhance cognitive skills for electrical engineering students

The model of web-based learning environment to enhance cognitive skills for engineering students was evaluated by experts. Acceptable average of each item was above 3.51.

Suitability of web-based learning environment/web-based lesson was evaluated by expert in 3 different fields (electrical engineering, web-based media, and web-based learning environment) and the data were analyzed with basic statistics (average and standard deviation).

Field trial was conducted with 30 electrical engineering students. The 30 sample students were chosen with simple random sampling from top, average, and bottom groups, 10 in each group. After completing the lesson, the students were asked to respond to the survey and give comments and suggestion for improvement to actual use.

The web-based learning environment was analyzed for its quality according to E_1/E_2 and 80/80 criteria.

Phase 3: investigate the result of using the web-based learning environment to enhance cognitive skills for electrical engineering students

The developed web-based learning environment to enhance cognitive skills for electrical engineering students was used in the trial mode. The environment was developed according to the principles, objectives, elements, procedure, and activity of the web-based learning environment model. Researcher administered the

Table 1. The actual field trial period.

Week	Lesson
1	Pretest
2-4	Unit1
5-7	Unit2
8-11	Unit3
12-16	Unit4
17	Posttest

model on the sample size by purposive sample of 30 students majoring in electrical engineering, Faculty of Engineering, Mahasarakham University, who registered in the course 0307303 Supply and Distribution of Electric Power in the first semester, academic year 2013. The researcher employed the research design called "one group pretest–posttest".

Research tools

1. Web-based learning environment/web-based lesson
2. Cognitive skill evaluation form
3. Academic achievement evaluation form
4. Students' satisfaction questionnaire

Data collection and analysis

Pretest was conducted by using the academic achievement form after the students had understood the instructions from the researcher. All students in the sample groups responded to the academic achievement evaluation form and cognitive skills evaluation form.

The web-based learning environment/web-based lesson was used in the field trial mode. The web-based lesson was developed according to the principles, objectives, element, procedures, and activities of the web-based learning environment model. It was used with undergraduate students majoring in Electrical Engineering at the Faculty of Engineering, Mahasarakham University for 15 weeks, from June to September 2013 (Table 1).

Posttest was conducted by using the same academic achievement form and cognitive skills evaluation form as the pretest. The results of posttest were compared with the pretest, both in term of academic achievement and cognitive skills.

The relationship between the post-lesson academic achievement and post-lesson cognitive skills of the students was analyzed.

Student's satisfaction after learning all units was surveyed and analyzed to find their satisfaction with the web-based learning environment.

Phase 4: confirm the web-based learning environment to enhance cognitive skills for electrical engineering students

The 5 experts were asked to confirm the web-based learning environment model with reference to the data from the field trial.

Research tools

1. The model of the web-based learning environment to enhance

cognitive skills for electrical engineering students

2. The evaluation form to confirm the model of the web-based learning environment to enhance cognitive skills for electrical engineering students.

Data collection and analysis

The manuals of the model of web-based learning environment to enhance cognitive skills for electrical engineering students were distributed to 5 experts.

The data in the evaluation form received as the feedback were collected and checked thoroughly before analyzing with basic statistics (average and standard deviation).

RESULTS

The investigation of the current contexts and demand for a web-based learning environment to enhance cognitive skills for electrical engineering students revealed that the structure, web-based learning, and web-based learning to enhance cognitive skills were implemented at the intermediate level ($\bar{x} = 2.56-3.50$) and the demand was high ($\bar{x} = 3.51-4.50$).

The model of the web-based learning environment to enhance cognitive skills for electrical engineering students derived from this development consisted of 4 major elements: 1) principles, 2) objectives, 3) procedures/activities, and 4) evaluation. There were also 3 minor elements. The first minor element was a web-based learning environment which consisted of 4 sub-elements: introduction to context, source of data, tools, and help base. The second minor element was web-based learning which consisted of 3 sub-elements: lesson, communication, and activities. The third minor element was the development of cognitive skills, which consisted of 4 sub-elements: motivation of cognitive structure, promotion of cognitive balance, promotion of cognitive structure expansion, and promotion and support in knowledge creation. The model can be summarized as in Figure 1.

Investigation of the results of using the web-based learning environment to enhance cognitive skills for electrical engineering students revealed that,

1. students learning with the web-based learning environment model had an academic pretest score of 52.37 percent and posttest of 92.40 percent, indicating that their academic achievements increased with the significance level of .01
2. students learning with the web-based learning environment model had the pretest cognitive skills of 28.26 percent and posttest of 56.60 percent, indicating that their cognitive skills were developed with the significance level of .01.
3. academic achievements had a relationship with cognitive skills with the significance level of 0.01.

4 students were satisfied with the web-based learning environment model, by overall and by single item at the high level ($\bar{x} = 4.05 - 4.23$).

The experts evaluated the quality of the web-based learning environment model by the overall and by single item to be the highest ($\bar{x} = 4.63$ S.D. = 0.80) and it can be concluded that the model of the web-based learning environment to enhance cognitive skills for electrical engineering students was the most suitable and could be used for teaching students effectively.

DISCUSSION

The findings of the research on development of the model of web-based learning environment to enhance cognitive skills for electrical engineering students worth discussing are as follows.

The model of the web-based learning environment to enhance cognitive skills for electrical engineering students consisted of 4 major elements: 1) principles, 2) objectives, 3) procedures and activities, 4) evaluation. This agreed with the concept of model development by Thitsana Khaemmani (2000), Khacha kritLiamthaisong (2011), Anderson (1999), Arends (2001), and Joyce and Weil (2004). There were also 3 minor elements. The first minor element was a web-based learning environment which consisted of 4 sub-elements: introduction to context, source of data, tools, and help base. This agreed with the explanation of Thongdiloet (2004), Buaphan (2004), Chaicharoen (2007), and Hannafin et al. (1999). The second minor element was web-based learning which consisted of 3 sub-elements: lesson, communication, and activities. This agreed with the discussion of Rueangsuwan (2011), Malithong (2000), Na Songkhla (1999), Rattanaphian (1999) and Campese and Campese (1998). The third minor element was the development of cognitive skills, which consisted of 4 sub-elements: motivation of cognitive structure, promotion of cognitive balance, promotion of cognitive structure expansion, and promotion and support in knowledge creation. This agreed with Chaicharoen (2007).

The web-based environment was of very high quality. The developed environment was effective with the score of 81.40/82.35, higher than the defined standard of 80/80. The effectiveness index was 0.8725, indicating that students learning in the web-based learning environment had more academic achievements by 87.25 percent. This may be because the researcher designed the web-based learning environment exactly as the design principle, considering the best benefit of learners. The researcher developed the web-based learning environment systematically. The outcome learning environment was

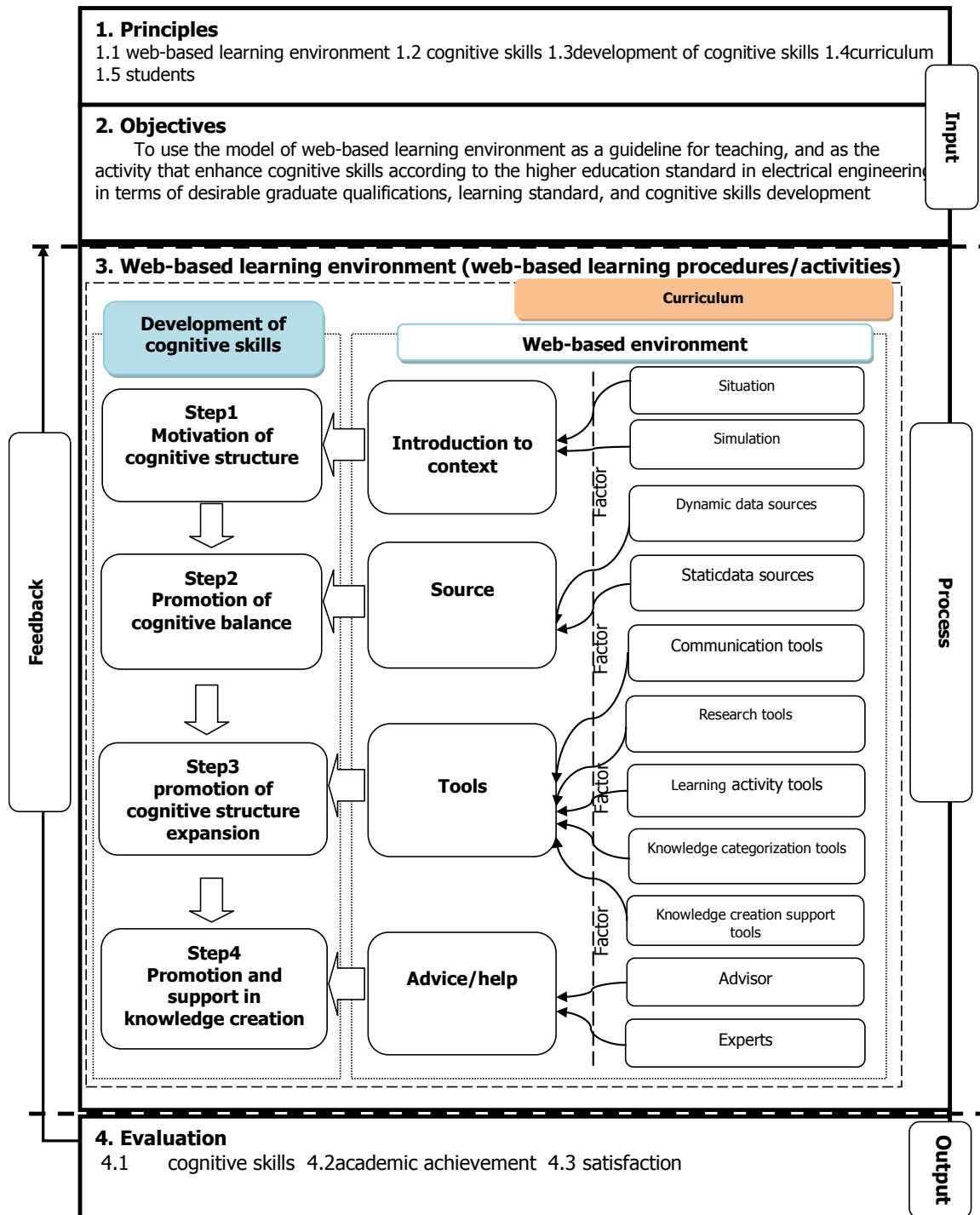


Figure 1. The model of web-based learning environment to enhance cognitive skills for electrical engineering students.

used through the learning management system (LMS), which has been accepted and applied widely for web-

based learning and evaluated by experts in content, web media, and web-based learning environment design. The

overall quality was very good. According to the study on the field trial with students, the advantages were as follows:

Students had more cognitive skills evaluation scores after learning than before learning with the significance level of .01. The research result suggested that the developed model of web-based learning environment contributed to higher cognitive skills development and student's academic achievement had a positive relationship with cognitive skills with the significance level of .01. That is to say, when students learned in the web-based learning environment, their academic achievements increased, making their cognitive skills develop better as a result. This findings agreed with Charuni (2009), who conducted research on the development of a model of web-based learning according to the constructivist theory that promotes creative thinking among undergraduate students. Charuni's study revealed that creative thinking had a positive relationship with students' academic achievement, as in the second and third phases of the study the correlation coefficients were 0.71 and 0.74 respectively. The results also accorded with Suchat (2010) who investigated the development of the model of web-based learning environment according to the constructivist theory that promotes problem solving and knowledge transferring. Suchat's research revealed that problem solving had a positive relationship with students' academic achievements as in the second and third phases of the study the correlation coefficients were 0.81 and 0.70 respectively.

The students had higher academic achievements after learning than before learning with the significance level of .01. The findings indicated that the developed model of a web-based learning environment contributed to higher academic achievements, which agreed with Itsara Kanchak (2004) who conducted a study on web-based learning environment developed according to the theory of constructivism: open learning environment: OLEs. Itsara found that academic achievements of students learning in the web-based developed with constructivist theory was higher than before learning.

Student's academic achievements and cognitive skills after learning in the web-based environment showed a relationship with the significance level of .01. That is to say, when academic achievements increased, cognitive skills developed accordingly. The outcome also agreed with Charuni (2009) who conducted research on the development of a model of web-based learning according to the constructivist theory that promotes creative thinking among undergraduate students. Charuni's study revealed that creative thinking had a positive relationship with students' academic achievement, as in the second and third phases of the study the correlation coefficients were 0.71 and 0.74 respectively. The results also accorded with Suchat (2010) who investigated the development of

the model of a web-based learning environment according to the constructivist theory that promotes problem solving and learning connection. Suchat's research revealed that problem solving had a positive relationship with students' academic achievements as in the second and third phases of the study the correlation coefficients were 0.81 and 0.70 respectively.

The students were satisfied with the web-based learning environment to enhance cognitive skills for electrical engineering both by overall and by single item at high level ($\bar{x} = 4.13$ S.D. = 0.76). This may be because the web-based learning environment allows students to learn and review the lessons online at any time, do activities, and ask questions. This agreed with Charuni (2009) who conducted research on the development of a model of web-based learning according to the constructivist theory that promotes creative thinking of undergraduate students. Charuni found that students thought the lesson content, network media, and the design were suitable and could promote students' ability to learn and creativity. This research was also in accordance with Suchat (2010) who investigated the development of the model of web-based learning environment according to the constructivist theory that promotes problem solving and learning connection. Suchat's research revealed that students thought the lesson content, network media, and the design were suitable and could promote students' ability to learn, solve problems, and transfer knowledge better.

Suggestion

General suggestion

Management, lecturers, as well as related personnel should emphasize on student development in cognitive skills together with academic lessons. Cognitive skills are considered the important part of education because they are trainable and beneficial in solving problems by looking at them from many different perspectives. Moreover, the old knowledge can be applied to solve new problems in the future.

Suggestions for further research

Web-based learning environment should be developed to support new technologies such as tablets and mobile phone. Since the 21st century is the age of IT and communication, students should be able to use technologies tools for learning at their maximum potential and efficiency.

The model of a web-based learning environment to enhance cognitive skills for electrical engineering students

should be applied with other universities such as those in the northern and central regions, including private universities. In addition, other models should also be improved to satisfy the need of language development in preparation for AEC during which web-based learning will be an important tool that will minimize the gap in face-to-face communication.

Conflict of Interests

The authors have not declared any conflicts of interest.

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Full Length Research Paper

A descriptive overview on expressional mistakes made by Turkic students in speaking Turkish: Kazakh case

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In the study conducted using qualitative research methods, one of the purposeful samplings, typical case sampling was used. The data were collected from two sources. The students were asked to prepare any topic they wanted and then delivered it. The students were observed for one month in order to detect their mistakes as they speak, through participant observation. Expression mistakes were classified and interpreted before they made them. Mistakes in one sentence considered for more than one category were classified under all categories. In addition, both in data collection and analysis, validity and reliability measures were taken. At the end of the research, we found that Turkic students made errors more in sentence components followed by compounds errors, errors originating from the use of plural morpheme, temporal-personal morphemes. We also observed that Turkic students made minimum errors in voice, conjunctions-prepositions and verbs.

Key words: Teaching Turkish, Turkic students, Kazakh, speaking skills, misuse, expressions.

INTRODUCTION

Although speaking is one of the most commonly used skills to transmit emotions, thoughts and expectations, it is still the most troublesome language skill. Considering that even the students born and raised up in Turkey have difficulty in speaking Turkish and communicating their thoughts to others, it would be even more challenging for them to learn Turkish and master speaking skills in a different geographical area within a different culture (Özyürek, 2009). As a result, those living outside Turkey make more errors speaking Turkish and construct more complicated expressions. Therefore, the present study is of great importance to detect the speech errors made by Turkish students born and grown-up in Kazakhstan.

Speaking is defined by various researchers in different

ways as “a complex skill that is acquired by a collective work of several organs (Temizyürek et al.); “expression through sound abilities of thinking and comparing, which are the attributes that separate man from other beings (Yaman, 2001); “verbalization of feelings, thoughts, dreams and requests” (Sever, 2011). As a rule, speaking is defined as a way of communicating feelings, thoughts, dreams of individuals to others; it is one of the ineluctable skills used to satisfy a need, share solitude, change prejudices, communicate knowledge and thoughts to others, advise and persuade people, share moral and ethical values, inform people about scientific researches, entertain oneself or spend nice time with others and so on (Gündüz and Şimşek, 2014).

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This skill that brings benefits to individuals in different parts of life is of great interest and importance not only for those living in Turkey but also for the Turkish-originated citizens. Both written and verbal communication is equally important for man in general and specifically for those in Turkic Republics to be in contact with Turkey and share knowledge and culture. It is obvious that very few researches have been reported to be directly related to Turkic people and their speaking skills in Turkish (Özyürek, 2009).

Considering the literature related to Turkic people, one of the most distinguishing papers was published by Oksuz (2011). In a study on the problems faced by Turkic students learning Turkish, it was found that the students made fundamental errors regarding compound verbs, case affixes, tense suffixes, gerunds and prepositions. Oksuz suggested that audio-visual tools like TV, computer and videos be used in order to eliminate the errors made in speaking.

One study on Turkic students and their problems in learning Turkish was conducted by Ozyurek (2009) who stated that Turkic students lacked vocabulary in verbal expression, used metaphorous Turkish words and had difficulty in derivation. He also recommended that Turkic students should be considered different from other foreign students in terms of learning Turkish; Turkish should be taught accordingly and Turkish practice books for Turkic students speaking Turkish dialects should be prepared.

Another study conducted by Açık (2008), whose sample is not completely on Turkic students, is worth citation since most of the participants were Turkish-originated students. In his study in which 85% of the participants are Turkish- originated, the students stated that after writing with 33% difficulty, they had difficulty in speaking. In his study where vocabulary was one of the distinguishing questions, Açık pointed out that the students joined cultural activities in order to solve these lexical problems.

Finally, Yılmaz (2015) studied the problems of Kazakh students learning Turkish and found that the most problematic skill that Kazakh students experience is speaking.

According to this study, Kazakh students stated totally 36 problems regarding speaking Turkish. Insufficient vocabulary was the most distinguishing problem followed by misuse of words, lack of practice, confusion of Kazakh words and affixes with those in Turkish, lack of grammatical rules, inability to construct long and grammatical sentences, confusion of tenses. In his study, Yılmaz suggested that mass media should publish more in Turkish so that students can solve their speaking problems and more and more students' mobility programs be actively used.

Seeing the relevant literature, no research has been reported on speaking skills of Turkic students. The present study is therefore important in that it both contributes to the literature and reveals grammatical

errors of Turkic students speaking Turkish.

Purpose of the study

Errors of sentence components in the study means the misuse of subject, object, predicate and complement. Compound errors in the study should be regarded as an attachment of adjective and noun to a common possessed or lack/surplus of possessor-possessed suffixes; verbal errors should be seen as the errors resulting from the misuse of affixes of verbal nouns, adjectives and adverbs; conjunctive and prepositional errors considered as the expression mistakes caused by miscomprehension of syntactic use of conjunctions and prepositions; expression mistakes as tense and personal morpheme inconsistency deriving from the inconsistency between mood and personal morphemes or inconsistency of personal morphemes between subject and predicate; disagreement of voice or a sentence error made because of the use of verbs in both active and passive voice or gerunds used in the same sentence. In addition, misuse of plural morpheme should be regarded as the expression mistakes resulting from syntactic question of plurality and singularity in a team of words, compounds and between subject and predicate (Akbayır 2007). The aim of this study is to determine expression errors of Turkic students speaking Turkish and find solutions to these errors.

MATERIALS AND METHODS

Research design

The present paper is a case study based on qualitative research method. A case study is an empirical research method where an up-to-date event is examined within its real life frame (content) and in which no certain limit is defined between the event and the content and which is used in situations where more than one data source or clue are reported (Yin, 1984). Since such an actual topic as the expression mistakes committed by Turkic students learning Turkish has been studied in real life frame and based on more than one data source, case study design was used. In addition, Creswell (2007, 73) regards case study as an approach where the researcher discovers one or a few limited systems using in detail the data collected from good and many sources at a time and reports the relevant themes describing the case. Therefore, since the data collected were defined from a holistic view, case study design was thought to fit best in our study.

Sample

In the study, one of the purposive sampling types, typical case sampling was used in accordance with qualitative research method. Typical case sampling is consulted generally to study an ordinary man, situation or phenomenon researched (Merriam, 2013). What is aimed indeed is to have general insight into a certain area studying the average cases or to inform those who do not possess enough information about a certain area, topic or application (Patton 2014, 236).

In the present study, the students studying at Turkish-English

Department in one of the state universities in Kazakhstan were selected for typical case sampling. During selection of the students, their cumulative grade point average was taken into consideration and a pool of students satisfying the average success in the department was created. Then, students were selected from this pool. The sample consists of 10 female and 9 male students. Their average achievement level ranges from 2.80 to 3.22. 10 of the students are third graders while 9 are fourth year students.

Data collection

Two sources were consulted for the data of the study. First, the students were asked to get prepared to talk about any topic they wanted; then they talked about it in the classroom. Even in the case of asking questions to students, they were not interrupted. They expressed themselves freely on the topic selected. When they were speaking, their speeches were recorded by a camera with their permission.

The students were observed for one month in order to detect their expression mistakes. In participant observation, the researcher implicitly or explicitly observes their attitudes and behavior without depending on a pattern (Güler et al., 2013). In this study, the selected students in the sample were observed in different places and time for a given period of time. The data at the end of observation were recorded and consulted later. The observation conducted has two aims in the present study: First, enrichment of data for the study and secondly designation of validity and exactitude of the data collected from the students through speaking by means of variation. The observations conducted were appropriate for both objectives.

Data analysis

Descriptive analysis was used to analyze the transcription of students' speech recorded by a camera. Descriptive analysis is summarization and interpretation of the data according to the themes prepared before (Yıldırım and Şimşek, 2011, 224). Expression mistakes of the students were classified and interpreted according to the categories prior to the study. In case of expression mistakes classified into more than one category in a sentence, the sentence was put into all other categories. In correction of the sentences, the original ones were respected as much as possible and the syntax of the sentences was not much changed. Showing the sentences of incoherency in the tables, the first statement in parenthesis suggests students' order number while the second one shows the time in minute and second when the students make mistake. Conducting descriptive analysis, we took into consideration the classifications of expression mistakes in the works of Aksoy (2008), Akbayır (2007), Eker (2003) and Aktaş and Gündüz (2011).

In order to minimize margin of error during classification, two different codifications were consulted: one by the researcher in different times and the other by a specialist researcher and an expert in qualitative research. Then, the consistency ratio between the codes was calculated by using Miles and Huberman's (1994) formula ($\text{Reliability} = \frac{\text{Consensus}}{\text{Consensus} + \text{dissidence}} \times 100$). The consistency ratio for the codifications done by the researcher at different intervals was .93 while it was calculated as .90 in the codifications made by the specialist.

RESULTS

Table 1 shows the expression mistakes of Turkic students in grammar. Almost half of the totally 157 expression

mistakes students made in grammar are related to sentence components. The students made errors most in compounds after sentence components and then the errors made using tense and personal morphemes with plural morphemes. The errors in the use of voice, conjunctions-prepositions and gerunds were relatively seen less.

Errors in sentence components are given in Table 2. Subject, complement, object and predicate errors made by the students in speaking were evaluated in this table. Turkic students make errors of components in grammar. All considered in itself, incoherency resulting from object errors comes in the first rank followed by complement and subject errors. Based on the examples, it can be concluded that the students neither used complements nor objects. Besides, they misused subjects and therefore gave way to uncertainties and did not make the objects explicit.

The examples of compound errors are given in Table 3. Among the compound errors committed frequently by the students are, as seen in the examples, sometimes the use of wrong morpheme or sometimes non use of possessor or possessed morpheme, redundant use of possessor morpheme.

In Table 4, there is only one gerund/infinitive error example given. Aside from this example, the students did not make any other error of expression. As clearly seen in the example, gerund is misused in the verb "to marry".

One of the expression mistakes in grammar is related to conjunctions and prepositions. It was found that the students had difficulty in using the preposition "ile (with)", as given in Table 5. It can be argued that the students made less errors in conjunctions and prepositions compared to other errors in other sections of grammar.

Expression mistakes resulting from tense-personal morphemes are given in Table 6. It was found that the errors were mostly due to the use of tense morphemes. The table suggests fewer errors due to personal morphemes.

In Table 7, examples are related to the inconsistency of voice. The errors were related to the use of passive voice. It is obvious that general expression mistakes considered, less errors due to the inconsistency of voice were reported.

Lastly, among the common grammatical errors is the use of plural morphemes. In Table 8, it is seen that errors are due to redundant use of plural morphemes and subject-predicate inconsistency. Errors concerning the use of plural morpheme are quite common in speaking.

DISCUSSION AND CONCLUSION

In the present study in which grammatical expression mistakes of Turkic students were examined, the errors were studied under eight different items: Sentence component errors, compound errors, verbal errors, conjunction and preposition errors, tense-personal

Table 1. Expression mistakes made by Turkic students in grammar.

Student	Subject	Complement	Object	Predicate	Compound	Verbal Errors	Conjunctions and Prepositions	Tense- Personal Morphemes	Inconsistency of Voice	Plural Morpheme	Total
S1		5	3								8
S2	1	9	10		7		1			9	37
S3		1	2	1	1		1			1	7
S4			2		4		2			1	9
S5			1		2						3
S6		1	2		5	1		2		6	17
S7		2	3		2				1	2	10
S8			1		6			3			10
S9		1	1								2
S10		3	1					2			6
S11		1		3	1		1	2	1	1	10
S12	1		1					2			4
S13			2		1					1	4
S14			2		1					1	4
S15				1	1						2
S16		1	1						1	4	7
S17		1		1	3						5
S18		3	2				1				6
S19		1	3		2						6
Total	2	29	37	6	36	1	6	11	3	26	157

Table 2. Errors concerning sentence components.

Wrong usage	Right usage
Mesela yalnızlığı <u>bir insanlar</u> korkunç diye düşünür. (S2, 0.52 min).	Mesela yalnızlığı <u>bazı insanlar</u> korkunç bir şey diye algılar.
Almanlar, Avrupalılar bu türbeye ilgi çekiyor. (S12, 1.29 min).	Bu türbe, Almanlar ve Avrupalıların ilgisini çekiyor.
Onların çok işi olsa da onlar <u>bizi yardım vermeye</u> hazır. (S1, 3.24 minute).	Onların çok işi olsa da onlar bize yardım etmeye hazır.
Bundan sonra Hoca Ahmet Yesevi bir mozole yapılmış. (S9, 2.36 min).	Bundan sonra Hoca Ahmet Yesevi için bir mozole yapılmış.
<u>Derin yalnızlık</u> , çok yaşlı ve hasta <u>insanlardan</u> görebiliriz. (S2, 2.28 minute).	Çok yaşlı ve hasta insanlarda derin yalnızlık duygusunu görebiliriz.
Guinness Rekorlar Kitabı hakkında hazırladım. (S7, 0.5 min).	Bu konuşmayı Guinness Rekorlar Kitabı hakkında hazırladım.

morpheme inconsistency, inconsistency of voice, misuse of plural morphemes.

In the study, Turkic students make errors most in sentence components. They committed 71 errors in sentence components of which 56 are due to the use of object and complement. It is possible that such a number of errors related to sentence components are due to the lack of knowledge in language rules. In the study

conducted by Yılmaz (2015) Turkic students acknowledged their ignorance in language rules. Another finding in the study by Yılmaz pointed out that they had difficulty in making long sentences but they also had problems in making short sentences, too.

The most conspicuous errors made after the errors in sentence components are related to compound errors. 36 errors out of 157 are compound errors. The use of wrong

Table 3. Compound errors.

Wrong usage	Right usage
Her <u>şeyde</u> bir görünüşü bir de iç yüzü vardır. (S5, 0.19 min).	Her şeyin bir dış yüzü bir de iç yüzü vardır.
Okumak için, çalışmak için, bir şeyler yapmak için başka şehirlerden insanlar <u>hepsi</u> buraya geliyor. (S17, 0.47 minute).	Okumak için, çalışmak için, bir şeyler yapmak için insanlar başka şehirlerden buraya geliyor.
<u>Çağdaş öğrenci</u> onlarca farklı özelliği bulunmalıdır. (S13, 1.19 min).	Çağdaş öğrencinin onlarca farklı özelliği bulunmalıdır.
Almatı <u>Kazakistan'ın en güzeli</u> ve önemli bir şehridir. (S17, 0.27 minute).	Kazakistan'ın en güzel ve en önemli şehirlerinden biridir.
<u>Köktepe'nin yukarına</u> çıkarsanız, <u>hep şehri</u> göreceksiniz. (S17, 2.18 minute).	Köktepe'nin yukarisına çıkarsanız şehrin tamamını göreceksiniz.
<u>Gelecek mesleğimiz</u> öğretmenlik. (S19, 5.14 min).	Gelecekte ki mesleğimiz öğretmenlik.

Table 4. Verbal errors.

Wrong usage	Right usage
Ne zaman nişanlı olacağız, ne zaman evlenmek bu başka evlenme problemleri kadar büyük bir problemlerin biri. (S6, 4.14 min).	Ne zaman nişanlanacağız, ne zaman evleneceğiz sorusu da diğer evlenme problemleri kadar büyük bir problem.

Table 5. Conjunction-preposition errors.

Wrong usage	Right usage
Bu <u>kelimeye</u> her kimsenin kendi düşünceleri var. (S2, 0.23 min).	Bu kelimeyle ilgili herkesin bir düşüncesi var.
Çok akıllı olduğu için <u>ona</u> evlenmiş. (S11, 2.18 min).	Çok akıllı olduğu için onunla evlenmiş.
Ders dışarısında yani parkta nemese süpermarkette öğrenciler öğretmen ile karşılaşsa ya da görüşse <u>onlara</u> selamlaşmıyorlar. (S18, 1.00 min).	Ders dışında yani parkta veya süpermarkette öğrenciler öğretmenleri ile karşılaşsalar ya da görüşseler onlarla selamlaşmıyorlar.
Dil diğer <u>insanlara</u> ve ilişkilerimizde bize aracılık eden ve sosyal bağlarımızı düzenleyen hayatımızın her yerinde olur. (S3, 0.35 min).	Dil diğer insanlarla ilişkilerimizde bize aracılık eden, sosyal bağlarımızı düzenleyen ve hayatımızın her yerinde olan bir araçtır.

Table 6. Inconsistency of tense-personal morpheme.

Wrong usage	Right usage
Annemi çok seviyorum, <u>herkes muhtaç</u> ben ona. (S10, 0.54 min).	Annemi çok seviyorum, her zaman ben ona muhtacım.
Bu şehire gitsen çok mezarları ve heykeller <u>buluyorsun</u> . (S11, 1.11 minute).	Bu şehre giderseniz pek çok mezar ve heykel görürsünüz.
Bundan sonra Taraz şehrinde <u>evlenmiş</u> her bir insan, Ayşe Bibi mezarına ve Karahan'a gidip sonra evlenecek. (S11, 4.40 min).	Bundan sonra Taraz şehrinde evlenecek her insan Ayşe Bibi'nin mezarına ve Karahan'a gidip öyle evlenecek.
Şimkent'e gelseniz birçok eğlence merkezlerine <u>gideceksiniz</u> . (S12, 2.29).	Şimkent'e gelerseniz birçok eğlence merkezine gidebilirsiniz.
Arkadaşın iki türü <u>oladı</u> (Ö8, 1.24 min).	Arkadaşın iki türü vardır.

morpheme, non-use of possessor morpheme, use of redundant possessor morpheme and non-use of possessed morpheme are some of the compound errors that are due to the lack of vocabulary and students' transmit of expressions from Kazakh to Turkish. Indeed,

Yılmaz (2015) in his study on Turkic students found similar results that Turkic students showed a tendency to confuse morphemes and allomorphs in Kazakh with those in Turkish. Although verbal errors are lesser in number, they are also the common expression mistakes.

Table 7. Inconsistency of voice.

Wrong usage	Right usage
Yılına yetmiş bin insan Guinness rekoruna tecil etsin diye başvuruda bulunuyor. (S7, 3.46 min).	Yılda yetmiş bin insan rekorları Guinness tarafından tescil edilsin diye başvuruda bulunuyor.
Karahan oraya gelip onunla nişanlaşmış. (S11, 3.53 min).	Karahan oraya gelip onunla nişanlanmış.
Sonra oy vermek oldu. (S16, 1.00 min).	Sonra oy verildi.

Table 8. Misuse of plural morpheme.

Wrong usage	Right usage
Evde, okulda, sokakta ve her işyerlerinde, her yerde onunla beraber yaşıyoruz. (S3, 0.47 min).	Evde, okulda, sokakta, işyerlerinde ve her yerde onunla beraber yaşıyoruz.
Mesela bizim ülkemize gelen çok bir yabancı insanlar Kazakistan hakkında çok bir şeyler bilmiyorlar. (S16, 0.25 min).	Mesela bizim ülkemize gelen pek çok yabancı insan Kazakistan hakkında çok fazla şey bilmiyor.
Bu şehirde çok yazarlar ve şairler doğmuş. (11, 0.59 min).	Bu şehirde pek çok yazar ve şair doğmuş.
Her insan bu duyguları hissedebilirler. (S2, 7.24 min).	Her insan bu duyguları hissedebilir.

Only one student out of 19 made this error. The error in misuse of gerund morpheme was found to be due to ignorance of where to use the morphemes. Both in the study of Yılmaz (2015) and that of Oksuz (2008), it was suggested that Turkic students had difficulty in using the morphemes. From this respect, the findings are similar to those in the relevant literature.

Another grammatical error that Turkic students make most in speaking Turkish is related to conjunction-preposition. Though not many errors were reported, only 5 students made these errors. Generally, the students had difficulty in using "ile (with)" preposition and instead of using "ile", they had a tendency to use the dative case "-e". This does not overlap the use in Kazakh. Oksuz (2011) found that Turkic people had difficulty in using conjunctions and prepositions.

Errors related to tense-personal morphemes are among the most common mistakes. Totally 11 errors were reported under this heading, most being in the use of tense morphemes rather than personal allomorphs. Such an error may be due to the fact that tenses in Kazakh are mostly different from those in Turkish. Oksuz (2011) stated Turkic students had problems in using tense morphemes.

Inconsistency of voice is another error frequently seen in grammar. Only three related errors were reported. All of these errors were related to the use of passive voice and the students make these errors though passive voice exists in both Kazakh and Turkish. It can be pointed out that only three errors related to the inconsistency of voice out of 157 errors may be due to the fact that the passive voice is constructed in the same way in both cognate languages.

The misuse of plural morpheme has also been reported to be among the most common expression mistakes. The

students made 26 errors out of 157 in the use of plural morpheme. These errors are mostly due to the redundant use of plural morpheme and discordance of subject and predicate. That most of the students used redundant plural morphemes after plural forms of the words in compounds causes extra errors. This aspect may be due to the lack of practice in writing and speaking. In the study of Yılmaz (2015), the students acknowledged that they experienced problems because they lacked practice. The present findings are in parallel with the literature.

All in all, it is obvious that Turkic students make grammatical mistakes mostly due to the lack of vocabulary and practice in speaking and writing. Not only Ozyurek (2009) and Açıık (2008) but also Yılmaz (2015) obtained similar results in the literature. The speaking errors of Turkic students reported in the present study are mostly grammatical.

Suggestions

1. Since Turkic students experience difficulties in sentence components, more activities should be done regarding sentence construction.
2. For their errors in compounds, learning environments should be created for more practice and enhancement of vocabulary.
3. To be able to correct their mistakes related to gerund, tense and personal morphemes and the use of plural morphemes, activities and events should be realized; they should be encouraged to participate in mobility programs like Mevlana and Erasmus+.
4. They should live learning experiences based on the use of material and technology in order to eliminate the few errors related to conjunctions and prepositions.

Conflict of Interests

The authors have not declared any conflicts of interest.

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Full Length Research Paper

A pilot study of students' learning outcomes using didactic and Socratic instructional methods: An assessment based on Bloom's taxonomy

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This work is a pilot study on the learning outcomes of students, who were taught a research course for seven weeks, using didactic and Socratic instruction methods. The course was taught in two sessions concurrently. The students were divided into two groups (A and B) and both groups were taught either with Socratic instruction method or didactic instruction method. At the end of the 7 weeks, the students were tested. The test, which was valid and reliable, was categorized into 5 domains of Bloom's taxonomy: analysis, comprehension, evaluation, knowledge and synthesis. Based on the results, there was no evidence to show if there is a difference in the learning outcomes of groups A and B. There was an outlier in the synthesis domain. Interpretation of students' projects and final papers shows a difference in the degree of creativity. This is however tangential to the main research question.

Key words: Didactic method, Socratic method, Bloom's taxonomy, pilot method.

INTRODUCTION

This study was an attempt to compare students' learning outcomes, using didactic and Socratic instructional methods. The student participants in this study were registered in one of two 7-week research courses that were taught concurrently. Group A consisted of students taught with didactic method, and group B consisted of students taught with Socratic method. In the process of fine-tuning and standardizing the instructional methods for the course, a pilot method was necessary to know which methods the students responded better to. The syllabus and learning outcomes for the course were

established, but the means of knowing the learning outcomes were not established. In addition to the syllabus and learning outcomes, the assessment questionnaire (the main instrument used in this study) was formed and categorized into the different learning levels of Bloom's taxonomy. Hence, this paper includes a review of prior empirical studies on didactic teaching method, Socratic teaching method and Bloom's taxonomy. The primary goal of the study is to show which of the methods students responded best to. The findings can be used to inform course facilitators of the best

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practices for teaching.

Research questions and hypotheses

RQ1: Is there a difference between the learning outcomes means of Group A (didactic group) and Group B (Socratic group)?

RQ2: How are the learning outcomes of Group A (didactic group) and Group B (Socratic group) compared in the five domains of Bloom's taxonomy?

H₀: There is no difference between the total means of the learning outcomes of Group A and Group B.

H_A: There is a difference between the total means of the learning outcomes of Group A and Group B.

LITERATURE REVIEW

Didactic method

Traditional teacher-centered (didactic) direct instruction is a method of teaching in which students are passive receptors of knowledge. However, in recent times, educators have been moving toward more student-centered understanding-based (constructivist) teaching that focuses on exploration and experimentation (Smerdon et al., 1999).

Leacock (1969), says in didactic teaching method, students have minimal initiation and do little exploration, as it involves little probing for personal or intellectual meaning. Simply put, didactic teaching is facilitated with strong adherence to established curricula. In all respect, didactic teaching falls in line with traditional hermeneutics, which focuses on interpreting text (Outhwaite, 1985).

Nadler et al. (2003), considered didactic instruction as a principled-based teaching. Moreover, these authors reported that in a study of training negotiators, that is, principle-based training, the students' confidence decreased. However, other investigations reveal that providing learners with a principle is not as effective as other types of learning, such as analogical learning (Gick and Holyoak, 1983; Loewenstein et al., 1999; Ross and Kilbane, 1997).

One of the drawbacks of didactic method is that unless there is a close connection between a principle and relevant examples, students cannot understand abstract principles (Ross and Kilbane, 1997). Therefore, this method should be complemented with other teaching methods, in order to increase students' confidence.

Socratic method

Questioning is one of the key elements of Socratic method (Overholser, 1993). According to Overholser's argument, Socratic method encompasses other things, such as inductive reasoning and active learning. He also argued that the method is a complex interplay of questions, content and process. Proponents of Socratic method also refer to it as *Socratism*, which emphasizes high-level cognitive reasoning, and content that induces independent problem-solving skills (Kearney and Beazley, 1991; Seeskin, 1987). The method requires collaborative interaction between the learner and the learned. This method can be used to facilitate self-guided discovery, helping students realize the answers they already have (Overholser, 1993). Butler (1997), postulated that focusing on the Socratic questioning method is a key to constructivist education. In an earlier advancement, Freire (1973) described Socratism in line with constructivism, saying it is a way of guiding learners to develop their own critical consciousness.

Tjosvold et al. (1977), described inquiry teaching as a method of teaching that supports students in examining, investigating, and exploring questions and situations to help their understanding. It enables students to discover their own insights. Socratic method is meant to help students develop problem-solving skills (Overholser, 1993) rather than simply accumulating factual information on subject matter. For Tjosvold et al. (1977) the expected outcome is for students to experience scientific methods of discovering and creating knowledge. Supporters of inquiry teaching believe that this method of teaching requires students to develop complex learning skills.

Bloom's taxonomy

Bloom's taxonomy is a multi-tiered model of classifying thinking according to six cognitive levels of complexity. Forehand (2010), depicted these levels as a stairway that leads teachers to encourage their students to "climb to a higher level of thinking." She added that the lower three levels are knowledge, comprehension and application; and the higher three levels are analysis, synthesis and evaluation.

At the inception of Bloom's taxonomy, it included knowledge, comprehension, application, analysis, synthesis and evaluation (Bloom, 1956). In the 1990s, Sosniak (1994) reexamined and re-conceptualized it as remembering, understanding, applying, analyzing, evaluating and creating. Figure 1 is a representation of the differences between the original version of Bloom's taxonomy by Benjamin Bloom (1959), and the revised

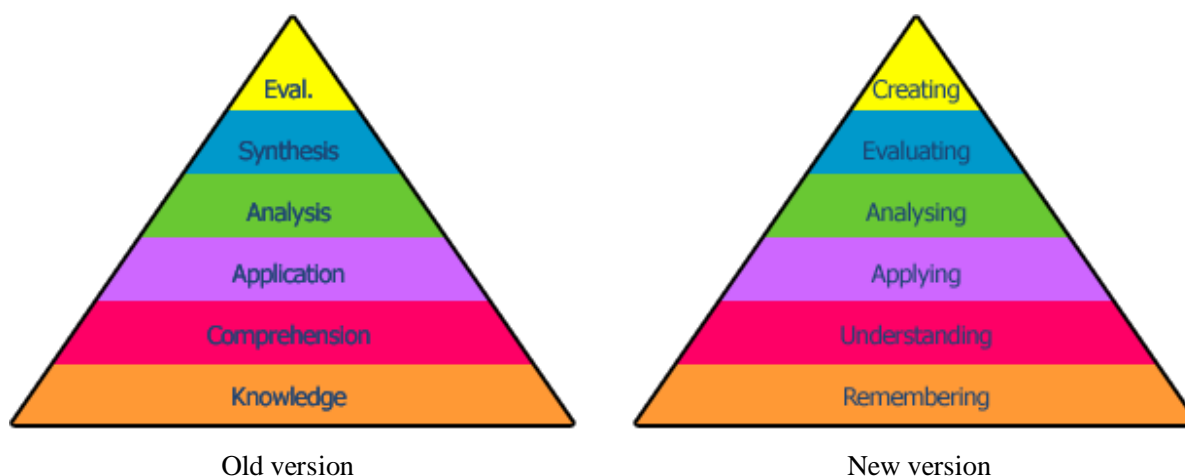


Figure 1. Old and new versions of Bloom's taxonomy (Sosniak, 1994).

version by Sosniak (1994) and Anderson (1999). Their new illustrations note a change between the versions from nouns to verbs. Sosniak (1994), in particular, described this change as an effort to describe the different levels of the taxonomy. He further extrapolated that the top two levels are essentially exchanged in the old to new versions.

Krathwohl (2000), argued that both versions are inherently similar. In his attempt to demystify this argument, he stated that it was a matter of verb vs. noun; suggesting that the revised gives greater weight to teachers' usage. He observed that *synthesis* and *evaluation* were exchanged, therefore, *create* was coined. The revision represents a hierarchy in the cognitive processes, which differ in their levels of complexity. In this vein, he cited, for instance that *remember* was less complex than *understand* and also less complex than *apply*. The levels of complexity are however not the focal point in this study; it is a tangential premise at best.

Thus, the aim of this study is to help the faculty of the student participants in the study to gauge the values of the two instructional methods (didactic and Socratic methods) and the degree to which they support students' learning as examined by Bloom's taxonomy. In terms of value added, this study prods faculty members to intentionally use instructional methods while teaching the research course, based on insights from this study. As typified by Forehand (2010), researchers and educators use either the original or the new version. Therefore, this study will adopt the original version of the learning taxonomy as presented by Anderson (1999) and Huitt (2004).

METHODOLOGY

Pilot-study was the design employed for this study. It permits preliminary testing of a methodology and provides the researcher with ideas, approaches, and clues that are unforeseen (Fraenkel and Wallen, 1993). For instance, the ancillary section of this study provides a few tangentially related evidences gathered through the course of this study. Though there were not anticipated, they appeared to be relevant findings. Hence, the use of pilot-study is invaluable in this instance.

Context of study

This study was premised on two types of instructional methods in an undergraduate-level research course, which is a science and general education requirement at the institution where this study took place. The purpose was to evaluate students' learning outcome under the instructional model of didactic method and Socratic Method. Students' learning was evaluated based on administering a 20 questions test, which was comprised of 15 multiple-choice and five binary questions. The test questions were grouped in the following domains: Analysis, comprehension, evaluation, knowledge and Synthesis. The activities associated with the instructional methods differ in terms of how the learning objectives were met. Appendix A, being the lesson structure, provides an illustration.

The course under study was offered in two different sessions concurrently, in a Midwest college campus. Group A consisted of 11 students and Group B consisted of 14 students. The study ran for 7 weeks. Each week, students were required to spend three hours in the classroom, with 21 total hours of in-class instruction. The students, being the participants in the study, were considered homogenous on the basis of having met the prerequisite for the course, which were statistics and composition. Furthermore, the students were at the same level on their programs course sequence That is, how many courses they have taken in their programs. The course under study took place in the college setting, and the course was a required liberal arts general education course in partial fulfillment of a baccalaureate degree.

Students, as participants, were predominantly male, over 18 years of age (therefore able to consent) were either in the criminal justice, or information and systems security or electronics programs. No other demographic data was collected.

Students who registered for the course were approached by the course instructor (who was also the researcher) to discuss the research agenda and solicited students' participation. This researcher informed the students that the course would be facilitated based on the didactic method or Socratic method. Further explanations of both methods were provided, and that two sessions of the course were offered concurrently, hence having Group A and Group B. Moreover, students were informed that their being in the Socratic or didactic group was random and that no specific requirement was considered for the grouping. After students were provided this information, the researcher/instructor asked for students' consent. Students were given a choice to opt-out of the study, but none of them did. They were guaranteed anonymity, in that their academic record, names, and pertinent data was not going to be included in the study. That their participation meant that they are registered in the course, are required to attend class, participate in the learning activities designed for the course, and take a final exam; all of which were the norms, if they were to pass the course. That said, they were not required to do anything extra. Finally, as a part of the information to students, and consent process, they were informed that their final exam results would be evaluated to determine the effectiveness of the instructional method they were part of. It should be noted that after being presented with the information, all the students consented in writing, by each signing a consent form.

Group A class took place on Tuesdays using a traditional face-to-face model. The course was didactically taught in ways that involved the use of traditional hermeneutics. In this regard, the teaching was heavily based on delivering content and providing heuristics. The goal of the instructor was to impart knowledge. The students were required to write a weekly paper on assigned chapters. They were required to take a 20-question examination, write a final paper on a student-selected topic, and present the paper as a project.

Group B class took place on Wednesdays, in a face-to-face classroom. Their learning was facilitated using the Socratic method. The instructor took more of a facilitator's role, encouraged challenges, induced learning through questioning, allowed some degree of constructivism, and used debate as a means for teaching. The students participated in small- and large-group discussions. As with Group A, Group B students took a 20-question examination, wrote a final paper on a student-selected topic, and presented the paper as a project.

The 20-question paper-and-pencil examination was the way in which student's learning was assessed, based on the five learning domains of Bloom's taxonomy which measured the differences in learning outcomes between Group A (didactic pedagogy) and Group B (Socratic pedagogy). Also, both groups were required to develop a research proposal.

Sampling technique

Being a pilot study, the goal was to test two methods of teaching in order to know which was most effective for students. Hence, two versions of the course were offered concurrently. Convenience sampling was employed for the entire class in both sessions.

Statistical test

The parametric two-sample *t* test is robust and not particularly sensitive to distribution, and therefore was used due to the relatively small sample size instead of the Mann–Whitney test. In this study, Minitab was used for the calculation of the results. Furthermore, a confidence interval of 95% was used because an alpha of 0.05 is assumed for most research and the researcher saw no reason to deviate from this.

Learning taxonomies

The students were evaluated using five of six Bloom's taxonomy domains. The domains measured were analysis, comprehension, evaluation, knowledge, and synthesis. Application, the sixth domain, was not included in the examination. The examination included a total of 20 questions. They were categorized as follows: Nine questions measured analysis, seven measured comprehension, two measured evaluation, one measured knowledge, and one measured synthesis.

Instrument

The instrument used in this study was a questionnaire consisting of 20 multiple choice questions. The 20 questions were from a 50-question test designed for the course. For proprietary reasons, the actual questions are not included in this paper. The questions were written using verbs adopted from sample questions of Bloom's taxonomy by Huitt (2004). According to Huitt, for questions pertaining to analysis, each included at least one of the following verbs: *analyze, appraise, categorize, compare, contrast, criticize, differentiate, distinguish, examine, and experiment*. Questions in the comprehension domain included the following verbs: *classify, describe, discuss, explain, identify, indicate, recognize, report, select, and translate*. In the evaluation domain, the questions included the following verbs: *evaluate, assess, and compare*. The question in the knowledge domain included the verb *define*. The question in the synthesis domain included the following verbs: *construct and organize*. The instrument used was considered as proprietary material and not available to the public domain. That is, the instrument was designed by a third-party consortium, in collaboration with this researcher. Nonetheless, it was tested for validity and reliability at the inception of the course. However, instructional method was the main question that required answers; hence the significance of this study.

RESULTS

The aim of this study is to ascertain if there are differences in learners' outcomes in the 20-question examination, using different teaching methods. In the results, the degrees of freedom are different because of unequal variances. This may also explain why there are differences between the degrees of freedom for all the domains (Table 1). The total mean of Groups A and B is not likely to be different. In the analysis, comprehension, and knowledge domains, were not likely to be different.

Table 1. Descriptive statistics.

Variables (%)	Count	N	N*	Median	Mean	St. Dev	Minimum	Maximum
Total A	11	11	0	79.55	11.50	65.00	75.00	100.00
Total B	14	14	0	75.71	11.07	60.00	75.00	90.00
Analysis 45 A	12	11	1	37.27	8.17	20.00	40.00	45.00
Analysis 45_B	15	14	1	37.50	8.03	25.00	37.50	45.00
Comprehension 35 A	12	11	1	25.00	9.75	10.00	30.00	35.00
Comprehension 35 B	15	14	1	23.57	7.70	10.00	22.50	35.00
Evaluation 10 A	12	11	1	9.091	3.015	5.000	10.000	15.000
Evaluation 10 B	15	14	1	6.43	4.13	0.00	7.50	10.00
Knowledge 5 A	12	11	1	4.545	1.508	0.000	5.000	5.000
Knowledge 5 B	15	14	1	3.214	2.486	0.000	5.000	5.000
Synthesis 5 A	12	11	1	3.636	2.335	0.000	5.000	5.000
Synthesis 5 B	15	14	1	5.0000	0.000000	5.0000	5.0000	5.0000

Table 2. Two-sample t-test and CI: Total A, vs. Total B.

Variable	N	Mean	St. Dev	SE Mean
Total A	11	79.5	11.5	3.5
Total B	14	75.7	11.1	3.0

Difference = μ (Total A) - μ (Total B); Estimate for difference: 3.83; 95% CI for difference: (-5.65, 13.31); T-Test of difference = 0 (vs not =): T-Value = 0.84 P-Value = 0.410 DF = 21.

On the other hand, in the evaluation domain, both groups were more likely to be different, as group A had 9.091 and group B, 6.43. In synthesis domain, there was a similarity, as Group A had 3.636 and Group B, 5.000 (Table 2).

As an alpha of 0.05 is smaller than p -value of 0.410, the null hypothesis cannot be rejected. This means the data do not show that there are differences between the groups as shown in the total scores. In doing other tests in future, to have higher degrees of freedom, the sample size can be increased. In this case, the degrees of freedom were somewhat reduced due to the difference in sample size. In Table 3, the p -value of 0.945 is larger than 0.05. Therefore, the null hypothesis cannot be rejected. This means the data do not show a difference between the groups, as shown in the analysis scores. In Table 4, the p -value of 0.695 is larger than 0.05.

Therefore, the null hypothesis cannot be rejected. This means the data do not show a difference between the groups as seen in the comprehension scores. In Table 5, the p -value of 0.076 is a bit larger than an alpha of 0.05. Therefore, the null hypothesis cannot be rejected. This means the data do not support a difference between the

Table 3. Analysis domain results.

Variable (%)	N	Mean	St. Dev	SE Mean
Analysis 45 A	11	37.27	8.17	2.5
Analysis 45 B	14	37.50	8.03	2.1

Difference = μ (Analysis 45% A) - μ (Analysis 45%_B); Estimate for difference: -0.23. 95% CI for difference: (-7.02, 6.57); T-Test of difference = 0 (vs not =): T-Value = -0.07 P-Value = 0.945 DF = 21.

Table 4. Comprehension domain results (Two-sample t-test and CI: Comprehension 35% A vs. Comprehension 35% B).

Variable (%)	N	Mean	St. Dev	SE Mean
Comprehension 35 A	11	25.00	9.75	2.9
Comprehension 35 B	14	23.57	7.70	2.1

Difference = μ (Comprehension 35% A) - μ (Comprehension 35%_B); Estimate for difference: 1.43; 95% CI for difference: (-6.11, 8.97); T-test of difference = 0 (vs not =): T-Value = 0.40 P-Value = 0.695 DF = 18.

groups, as seen in the evaluation scores. However, if an alpha of 0.10 were used, it would likely be significantly different.

In Table 6, the p -value of 0.113 in the knowledge domain is larger than an alpha of 0.05. Therefore, the null hypothesis cannot be rejected. This means the data do not support a difference between the groups as seen in the knowledge scores. There is an outlier in Group A whereas Group B had some variability. The impact of the outlier is minimal in particular because the null hypothesis

Table 5. Evaluation domain results (Two-sample t-test and CI: Evaluation 10% A vs. Evaluation 10% B).

Variable (%)	N	Mean	St. Dev	SE Mean
Evaluation 10 A	11	9.09	3.02	0.91
Evaluation 10 B	14	6.43	4.13	1.1

Difference = μ (Evaluation 10% A) - μ (Evaluation 10%_B); Estimate for difference: 2.66; 95% CI for difference: (-0.30, 5.63); T-test of difference = 0 (vs not =): T-Value = 1.86 P-Value = 0.076 DF = 22.

Table 6. Knowledge domain results (Two-sample t-test and CI: Knowledge 5% A vs. Knowledge 5% B).

Variable (%)	N	Mean	St. Dev	SE Mean
Knowledge 5 A	11	4.55	1.51	0.45
Knowledge 5 B	14	3.21	2.49	0.66

Difference = μ (Knowledge 5% A) - μ (Knowledge 5%_B); Estimate for difference: 1.331; 95% CI for difference: (-0.343, 3.005); T-Test of difference = 0 (vs not =): T-Value = 1.65 P-Value = 0.113 DF = 21.

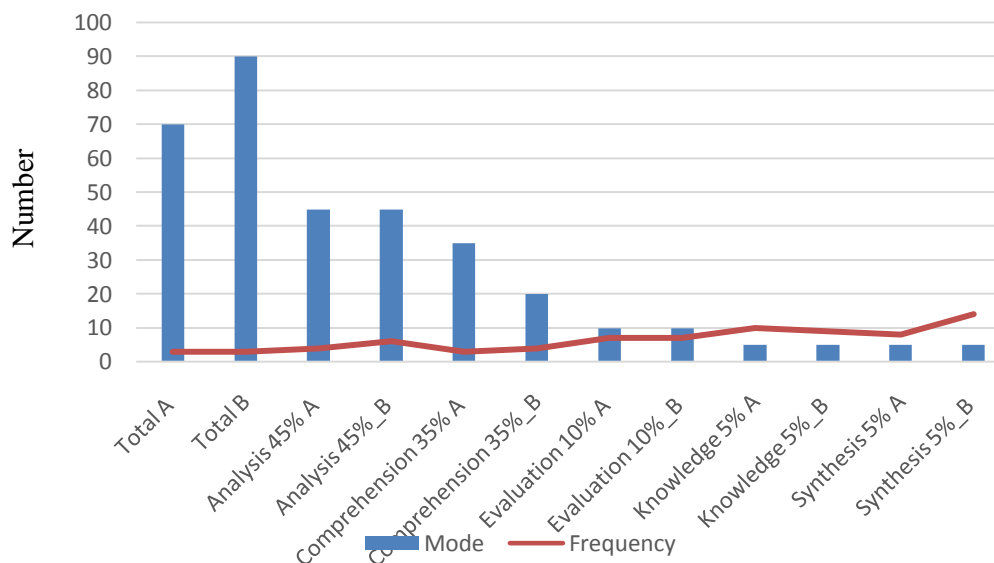


Figure 2. Mode and frequency graph.

cannot be rejected.

For the synthesis domain, based on the boxplot, one could hypothesize that the mean of Group B is higher than that of Group A. However, this cannot be called a statistical difference because Minitab was not able to calculate it due to the fact that Group B values were identical; that is, had no variability (Figure 8).

Results of the research questions

Research question 1: Is there a difference in the learning outcomes means of Group A (didactic group) and Group B (Socratic group)? There is no evidence to support if there is a difference in the total scores based on the p -value of the two-sample t test (Figure 2).

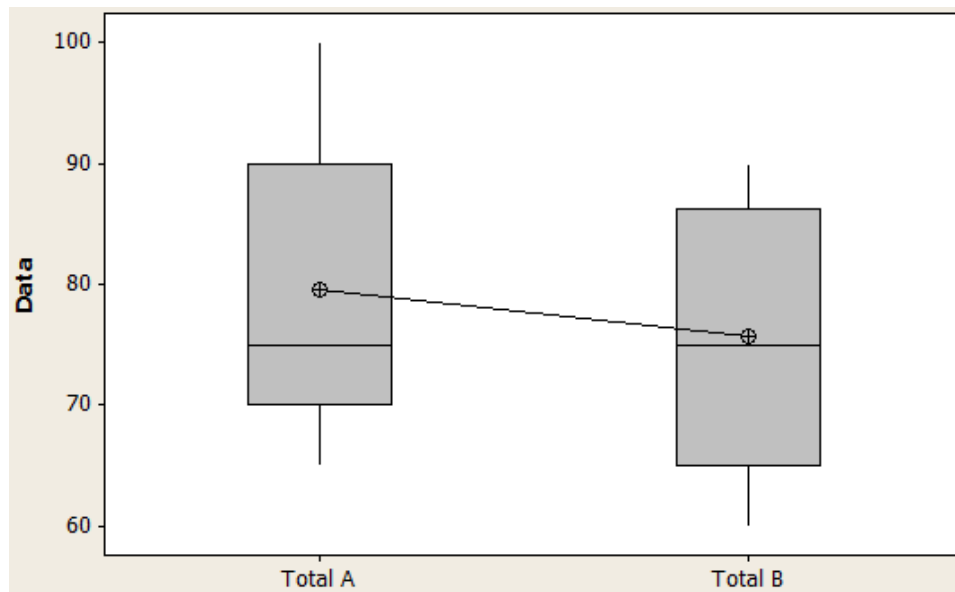


Figure 3. Boxplot of the total for Group A and Group B.

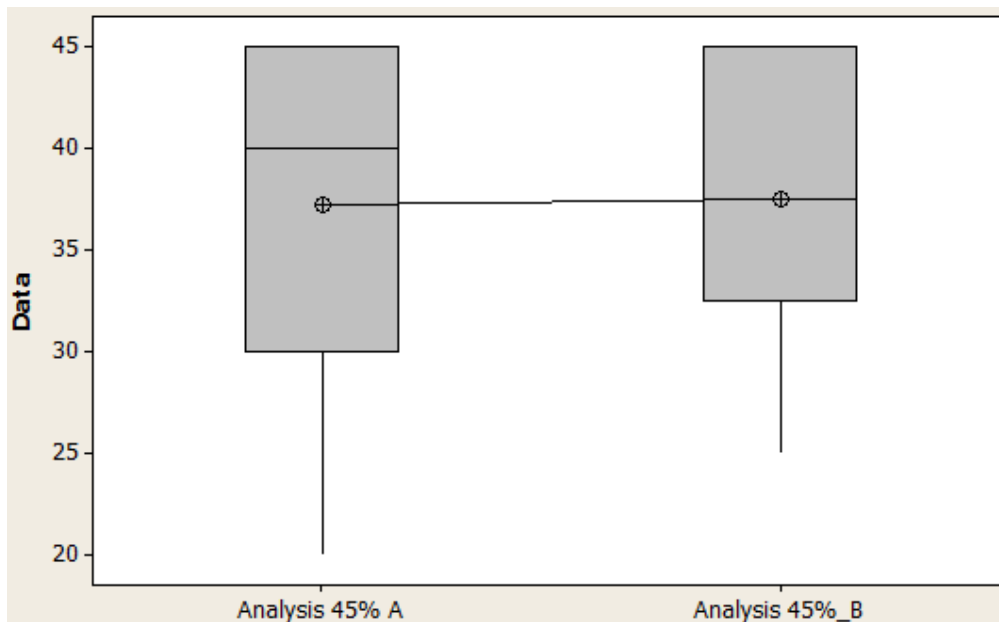


Figure 4. Boxplot of the analysis scores for Group A and Group B.

Research Question 2: What is the comparison in the learning outcomes of Group A (didactic group) and Group B (Socratic group) in the five domains of Bloom's taxonomy?

For the analysis, comprehension, evaluation, and knowledge domains, there is no evidence to support if there is a difference based on the p -value of the two-sample t test. The Boxplots (Figures 3 to 7) provide a visual

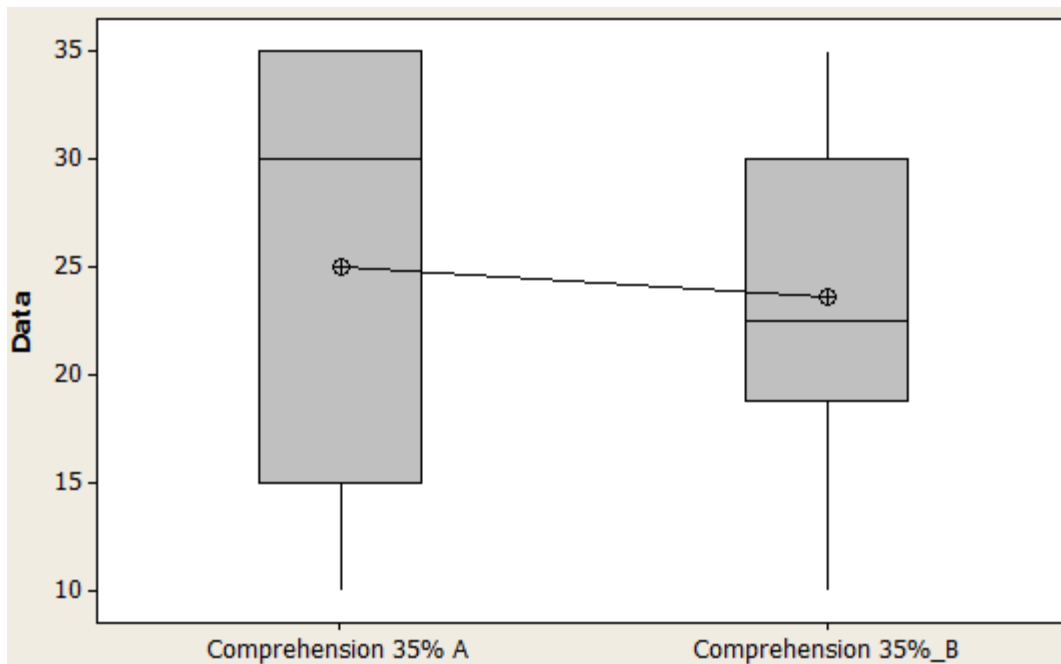


Figure 5. Boxplot of the comprehension scores for Group A and Group B.

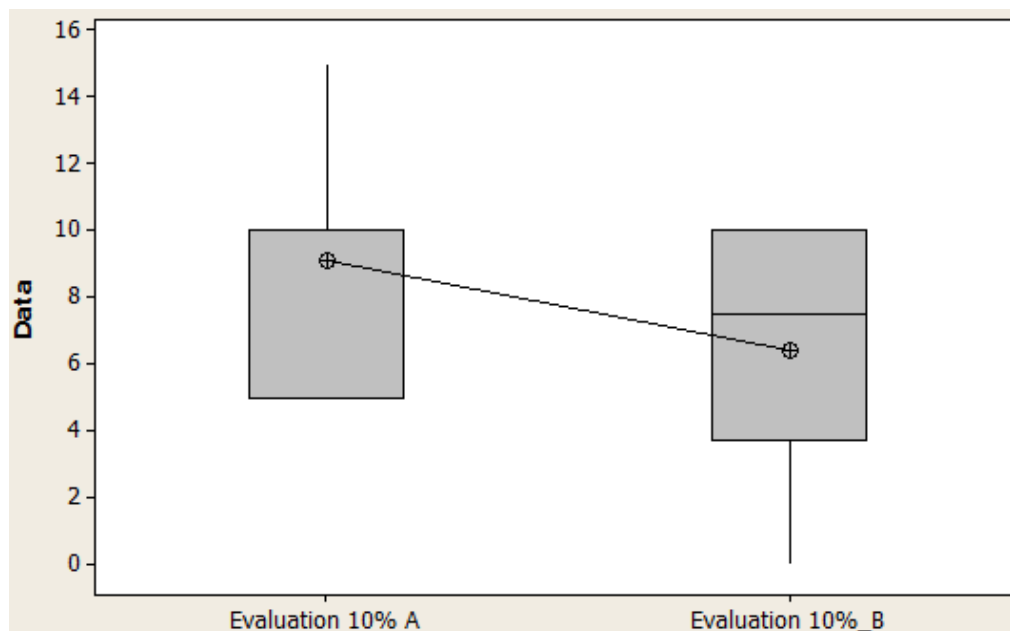


Figure 6. Boxplot of the evaluation scores for Group A and Group B.

analysis of the test. For the synthesis domain, it appears that Group A was higher than Group B based on what

was observed from the Boxplot (Figure 7), but it cannot be called statistical difference.

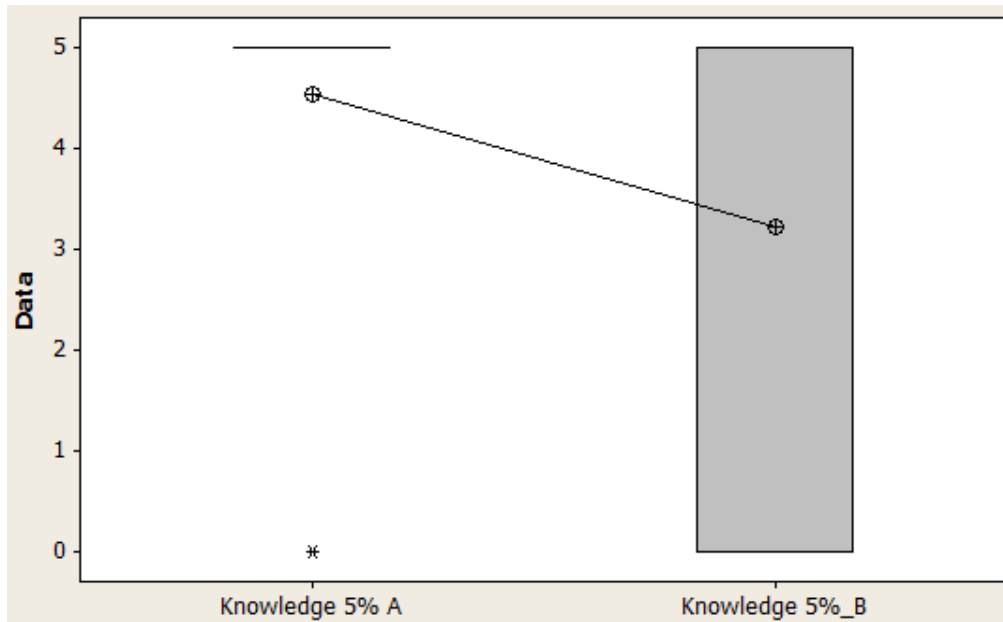


Figure 7. Boxplot of the knowledge scores for Group A and Group B.

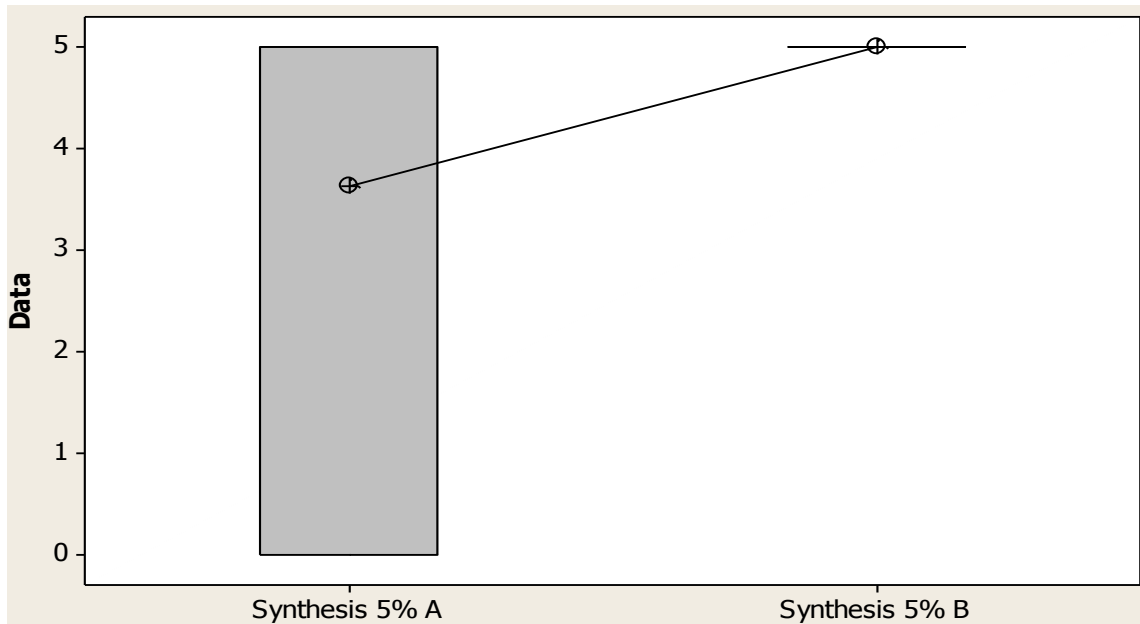


Figure 8. Boxplot of the synthesis scores for Group A and Group B.

DISCUSSION

The student participants in this study took the same

course over a 7-week period using a traditional face-to-face model. However, Group A (11 students) was exposed to the didactic teaching model, whereas Group

B (14 students) used the Socratic teaching model. At the end of the course, both groups did projects individually that included a self-selected topic, research paper, and presentation. Group B also participated in a debate. And, both groups were assessed using the same 20-questions examination. Each participant could score up to 100% in the examination. The comparison of the results of the 20-questions examination between the two groups included assessing the overall results of the examination and using of Bloom's taxonomy domain. Statistically, the examination results for Group A and Group B do not appear to be significantly different.

CONCLUSION

First, based on the findings in this study, instructors may use either Socratic method or didactic method in teaching the course. From this study, it could be inferred that students' test results are not likely to be different. Secondly, an observation from this study shows that the Socratic group employed creativity based on the artifacts and diversity of approach used in presenting their projects. Group A's projects, from the students who were exposed to didactic instruction, appeared to be generally linear. In part, they all used PowerPoint presentations, did not introduce any artifacts, and did not raise new questions (greater illustration of this is provided in the ancillary findings section that follows). Bringing both the test results and project outcomes to bear, it is best to employ both Socratic and didactic methods in teaching the course. This may help to balance students' acquisition of the content and prepare them for further inquiry, especially in using different research methods, such as qualitative to address complex issues. Simply put, didactic teaching methods can enhance knowledge acquisition—that is, provide students with the heuristics of inquiry. However, employing the Socratic teaching method will help students beyond possessing heuristics to produce creative outcomes.

Limitations of study

Pilot-study is considered a small-scale study trial of a proposed procedure, which is used to test models, hypotheses, and detect problems that could be remedied for future practice or study (Fraenkel and Wallen, 1993). Therefore, findings from a pilot-study may only apply to the context of study – which makes generalizability limited. Secondly, the use of convenience sampling, based on using the course that was accessible, and sample size being 11 and 14 students pose as

limitations. Finally, the result of this study is limited; in part, it could only be used to inform future instructors of this course about what outcome to expect if the same testing questionnaire is used and if the course study is facilitated using didactic or Socratic method. Simply put, students may perform differently if other instructional method other than didactic or Socratic method is used.

Future research

Based on the limitations of this study, future researcher could consider a different research method other than a pilot-study. Therefore, using a random sampling technique, with a larger sample size would be better.

Ancillary findings

For the students' self-selected projects, they were required to turn in a paper and present their findings using different visuals including PowerPoint presentations, videos and collages. Group A's (didactic method) papers reflected key terms which indicated that the students understood the topic vastly. The themes from Group A's papers suggest that the students had knowledge of the topic and comprehended the subject. The visuals, which mainly included PowerPoint presentations, reflected the students' understanding of the course contents. All 11 students used PowerPoint presentations and no other visuals. Outcomes were direct, simple and concise. Group B's (Socratic Method) papers appeared to demonstrate knowledge and comprehension of the topic. Nine of the 14 students' papers had some degree of dialectic exchange of ideas and corroboration, and raised challenging points as well as unique line of inquiries, which reflected synthesis, analysis and evaluation. Visuals included PowerPoint presentations, videos, collages and documentaries. Outcomes were creative.

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Conflicts of interest

The author has not declared any conflicts of interest.

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Full Length Research Paper

Frame-analysis of argumentation in court opinion texts: empirical research

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The article focuses on practical experiment on perception of argumentative nature of court opinions by non-native speakers. Several argumentative frames most frequently used in the texts of court opinions are identified and described in the article. The article also aims at analyzing the distribution characteristics of the identified frames. Text of court opinion not only performs informative and performative functions, but also reflects the socio-pragmatic setup of the author. A definite set of communicative senses is reflected in the respective modus functions forming a specific meta-category of modus in the judicial discourse. The function of this meta-category is to specify facts through the synthesis of the objective (that is, legally justified) and subjective (which include the position of the court, or of the judge) components of argumentative frame.

Key words: Meta-language, argumentative frames, distribution of frames, judicial discourse.

INTRODUCTION

Discourse as an object of research has undergone a difficult way of development, but so far has no complete, exhaustive definition of discourse have been worked out. Discourse, as an interdisciplinary phenomenon is treated from different methodological positions in various scientific systems which allows to highlighting certain aspects of this complicated phenomenon.

However, there are two main areas of research within which the concept of discourse can be defined: formal "language above sentence level" (Schiffirin, 1994) and functional "situational language in use" (Brown and Yule 1983). The discourse, considered as a form of language use, deals with the study of linguistic structures and components, distribution of these structures in the dynamics of discourse unfolding, models and principles

of their incorporation into larger constructs. "Structural descriptions characterize discourse at several levels or dimensions of analysis in terms of many different units, categories, schematic patterns, or relations" (van Dijk, 1985). Description discourse from structural perspective can help identify different relationships and modalities determining the discursivity of sentence sequence or other constructs, their internal relationships and principles governing their compounds.

The present article focuses on a specific type of discourse – argumentative judicial discourse, and on argumentation perception analysis from the perspective of cognitive approach and frame analysis. In this issue the authors will understand the judicial discourse as text (communicative product) related to the field of court

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proceedings, in the dynamics of its generation, perception and interpretation (Feteris and Prakken 2000).

In the dynamics of its formation judicial discourse, like any other type of discourse, represents a sequence of discursive frames (Goffman, 1975; van Dijk, 2006). This study will adhere to the frame analysis approach as the basic approach to the judicial discourse study; a frame will be understood as a cognitive prototype serving as a constitutive unit of description, constructing, and modeling the discourse and its specific genre variety. It should be mentioned that the linguistic content of frames varies depending on the intentional settings of the communicants.

The article basically focuses on identification of argumentation in the text of court opinion and on its interpretation. As Feteris and Kloosterhuis (2009) points out "critical reader must first *identify* argumentation as such. That means that he (critical reader) must establish which parts of the decision constitute the argumentation and what function this argumentation fulfills. Second, he must *interpret* the argumentation.

The research into this disputable field seems topical and relevant, as it allows to study the process of understanding and producing of speech units in the act of reasoning in context of professionally-oriented communication; it also allows to explore cognitive structures of expert knowledge representation in terms of the argumentation aspect; to identify specificity of these structures, taking into account the characteristic features of the language system and tradition of a concrete professional community.

MATERIALS AND METHODS

According to researches (Ashley 1990, Yin 2009) problem-solving or case studies approaches are widely used in empirical research focused on specific aspects of linguistic phenomena. The present paper considers theoretical aspects of argumentation in judicial discourse, thus, methodological basis for the analysis is the anthropocentric approach, which allowed the use of a combination of cognitive, linguistic, and functional-semantic analyses to identify and provide integral description of argumentative structures in the text of the court opinion. The basic method of linguistic description used in this article is frame-analysis as this approach allows interpretation of the concealed information embedded in the text.

To conduct the research, this study has selected 37 texts of court opinions made by the US Court of Appeals for the seventh circuit. All texts belong to the sphere of criminal law; tried cases concerned drugs crimes. The study decided to stick to one criminal law topic to achieve greater conformity of the results.

Focus of the research

In the texts of court opinions (which we believe to be argumentative by their nature), the study identified argumentation frames that provide discourse dynamics. The study also tried to analyze the linguistic representation of frame slots in the terms of "dictum" and "modus" function to see what linguistic means contribute to creation of "argumentation". Discussing sustainable discursive structures, the study call them functions of discourse semantics, and in the

wake of N. Chomsky's (1980) research, the study make the assumption that these functions can be both informative (dictum) and operational (Modus), the latter providing the discourse dynamics. In this study opinion, argumentation frame of judicial discourse may represent clusters of the above mentioned functions.

HYPOTHESIS

1. The most frequent frames to indicate the main part of the court opinion are the following:

Presentation of the fact - classification of the fact;
Fact - limits of verification.

Variants of the same frames are used to indicate a new micro topic, although the submitted list may be supplemented by such frames as:

Fact – competence of the fact's source;
Presentation of the fact - competence of the fact's source;
Fact - the statement of a goal.

2. Frames that are at the beginning of the argumentative part of the court opinion or open up a new micro topic are the most loaded in argumentative terms. However, this does not mean that the rest of the frames are not argumentatively loaded, as they all provide the dynamics of judicial discourse. The appearance of modus elements is due to the presence of modal verbs, emotively coloured vocabulary in the linguistic representation of a frame, as well as due to the presence of references to the case law, which is a specific form to express a high degree of confidence for the discourse of this type.

RESEARCH AND ANALYSIS

As part of this study experiment, a survey was conducted among: students of the third and fourth year of law school, studying the module "translator in the field of professional communication (law)" and having an average rating in the disciplines of language unit "excellent"; professional translators working with the English language (for whom English is not native), and who have an extensive experience (at least 6 years) in the translation of legal documents, including judicial records. The study prepared a list of questions (interview protocol) which was the same for both categories of our respondents. The interview protocol for the survey is as follows:

- A. Which of the below listed discursive fragments you think more argumentatively loaded than others?
- B. Which of these structures would you use to indicate the beginning of the main part of the court opinion?
- C. Which of these structures would you use to indicate a new semantic section (micro topic) in the texts of the court opinion?

Discourse fragments are the following:

1. Mr. Gonzales had the burden of proving to the district court that his role in the offence is minor in comparison to

that of others involved in the same offence.

2. Bolivar argues that the district court erroneously admitted his post-arrest statement to the police because, he insists, that statement about his knowledge of drugs arriving from Mexico only served to prove his propensity to commit bad acts. See *Fed. R. Evid. 404(b)*.

3. The Sentencing Guidelines allow a defendant's offence level to be reduced by two levels when the defendant is a "minor participant" in the offence. *United States v. Emerson*, 501 F.3d 804, 815 (7th Cir. 2007).

4. We will reverse a district court's findings on witness credibility only if the testimony is "incredible as a matter of law", meaning that "it must have been physically impossible for the witness to observe that he or she claims occurred, or impossible under the laws of nature for the occurrence to have taken place at all". *Ortiz*, 431 F.3d at 1039.

5. We certainly have jurisdiction to consider whether a district court is required to reevaluate the section 3553 sentencing factors and, more particularly, to consider the potential for sentencing disparities when granting a sentence reduction under Rule 35(b).

6. To the extent that the defendants contend that the district court's consideration of their criminal histories and the nature of their crimes was improper because those factors already had been considered at the initial sentencing hearing, we have jurisdiction to consider their claim.

7. We review for clear error a district court's finding of fact regarding a defendant's level of participation in an offence. *United States v. Olivas-Ramirez*, 487 F.3d 512, 516 (7th Cir. 2007).

8. This court reviews a district court's denial of a motion to withdraw a plea of guilty for an abuse of discretion.

9. This argument is a nonstarter. As long as the sentencing judge gives an adequate justification, the judge may impose a sentence above the guidelines range if he believes the range is too lenient. See *Gall v. United States*, 552 U.S. 38, 49-50 (2007); *United States v. Perez-Molina*, 627 F.3d 1049, 1050-1051 (7th Cir.2010), *United States v. McIntyre*, 531 F.3d 481, 483-84 (7th Cir. 2008); *United States v. McKinney*, 543 F.3d 911, 913-14 (7th Cir. 2008).

10. Arguments may not be raised for the first time in a reply brief; this submission therefore is waived. *United States v. Dabney*, 489 F.3d 455, 460 (7th Cir. 2007); *United States v. Harris*, 394 F.3d 543, 559 (7th Cir. 2005).

11. Section 3742 does not grant appellate court jurisdiction to review a district court's exercise of its discretion under Rule 35(b). See *McGee*, 508 F.3d at 444-45 ("Our jurisdiction mandate is limited and does not extend to a district court's discretionary decisions regarding sentencing").

12. Finally, we turn to Bowlin's argument that the Government is barred from alleging drug quantities in the indictment that can later serve as grounds for enhancing a defendant's sentence.

13. This court reviews a district court's denial of a motion

to withdraw a plea of guilty for an abuse of discretion.

14. Baily cites our holding in *United States v. Baker*, 499 F.2d 845, 848 (7th Cir. 1974) to support his proposition that Baily was simply "along for a ride", but his argument misses the mark.

(All text fragments were taken from court opinions of the Court of Appeal for the seventh circuit, USA)

The research data reveal that almost all respondents (94%), responding to the first question of the survey ("Which of the below listed discursive fragments you think more argumentatively loaded than others?") chose the frames "Fact - limits of verification + (m)"¹ and "Presentation of the fact - classification of the fact + (m)." Fewer numbers of respondents (73%), were mostly professional translators, also pointed to the discourse fragments corresponding to frames "Presentation of the fact - competence of the fact's source + (m)" and "Fact - the statement of a goal + (m)." Only 8% of respondents as the most argumentatively loaded discourse fragments indicated those corresponding to the frame "Fact – competence of the fact's source + (m)".

Essentially, the same statistics were obtained in response to the second and third questions ("Which of these structures would you use to indicate the beginning of the main part of the court opinion?" and "Which of these structures would you use to indicate a new semantic section (micro topic) in the texts of the court opinion?").

It should be noted, that students choosing the discourse fragments to indicate the main part of the court opinion and new micro topic have largely picked frames "" Fact - limits of verification + (m)" and "Presentation of the fact - classification of the fact + (m)". Range of responses of professional translators is broader and includes all of the frames listed in the hypothesis. The study wisum up the research results in Table 1.

In the course of the research, respondents were also asked to answer the question: What text fragments reflect the confidence of the author in what is being reported/ stated? What linguistic means are used? Answering this question, both groups of respondents picked out the frames containing emotive-colored vocabulary (simply, certainly, incredible), modal verbs with simple infinitive (may not, had to) and past infinitive forms (must have been), focus particles (only).

As a specific means of expression the confidence in the author's statements 81% of respondents identified the reference to precedent.

However, it should be noted that 17% of students-respondents identified terminological phrases (example, burden of proving) as emotively coloured lexis. This research hold the point of view that a legal term caught in the "fabric" of discourse carries an extra-linguistic meaning and has no modus.

¹(m)-modus function

Table 1. Research results.

Frames/ Questions	Most argumentatively loaded frames	Frames to indicate the beginning of the main part of the court opinion (%)	Frames to indicate a new micro topic in the texts of the court opinion (%)
Fact - limits of verification	94	91	89
Presentation of the fact – classification of the fact	94	80	81
Fact – competence of the fact's source	8	67	69
Presentation of the fact - competence of the fact's source	73	53	49
Fact - the statement of a goal	71	24	25

DISCUSSION

This study provides theoretical background, and gives some examples of the analysis of argumentative frames. The study did not mark distinction between text and discourse; judicial discourse was understood as a text (communicative product) related to the field of law, in the dynamics of its generation, perception and interpretation. This understanding is based on the fact that a text of court opinion is one of the most important components of judicial discourse. Text of court opinion not only performs informative and performative functions, but also reflects the socio-pragmatic setup of the author.

Judicial discourse is characterized by such properties as institutionality, argumentation, evidentiality and intertextuality. Property of argumentativity is pragmatic specifics of the judicial discourse. Argumentative discourse, as noted by many researchers, is distinguished by rather rigid framework of its structuring, in which consequence, the implicit elements can be restored. Creating argumentative discourse, argumentator can resort to the use of complex forms of logical reasoning, and the structure of the argumentation will not necessarily coincide with the structure of the text, which is built on its basis.

Legal reasoning mainly refers to the work of judges, aimed at justifying the decision. US researchers have defined the legal argumentation as "a thought and speech act aimed at the neutral, objective, inexpressive explanation and justification of the decision» (Fletcher and Sheppard 2005). Legal reasoning and communication use specific type of argumentation – argumentation by definitions which should be distinguished from the dictionary ones. This kind of argumentation involves creation of statements - actualized proposals. US Constitution can be referred to as an example of the result of this argumentation type.

"A legal case has various aspects, each with its own modes of reasoning" (Prakken and Sartor, 2015): the present article examines legal argumentation in the text of court opinion viewed as a communicative product of judicial discourse.

In this article we hold to the point of view that the legal

text is argumentative by its virtue. The type of texts we are dealing with is an opinion made by the court of appeals for the lawsuit; this kind of texts cannot be void of argumentative nature. Such texts have certain communicative communication-related functions:

Locution – that is, the text itself;

Illocution - some form of suggestion, the evidence presented in a certain way in the text;

Perlocution – an impact on a person perceiving the text;

This triad in essence represents what the study call communication-related functions. The recipient receives a communicative product, familiarizes with it, and coordinates his actions with it, because this type of communicative product is prescriptive, that is, binding, otherwise it may be appealed in accordance with the established procedure. As the study has pointed out earlier, this study do not distinguish between the concepts of text and discourse, and the text of the court opinion was understood as a complete communicative product.

However, it should be noted that the study regard the discourse as a form of language use that contains certain components and structures, and that allows investigating the distribution of these structures in the dynamics of discourse, as well as models and principles of their incorporation into larger constructs. The study also shares to an extent some scholars' understanding of discourse as a non-discrete process, which has no specific completion, but can be fragmented into elements, the largest of which is a communicative event. From this point of view, the text of the court opinion can be considered as verbal representation of a fragment of a judicial discourse, that is, communicative product.

Discursive frames are represented by certain linguistic structures, which recipient interprets that is, on the one hand, these structures are decoded by the recipient of these structures at the level of meaning (in other words, at the level of the linguistic form), and on the other hand, it should be understood that these meanings provide basis for actual senses, including extralinguistic ones, thus, the interpretation occurs in a particular context.

Like any coherent written text, the court opinion is a

complete product with a certain communicative structure. This type of a document pertains to a discourse of institutional type, it is inherently argumentative, characterized by a high degree of rituality and as a result, subject to very little structural variability. Knowledge of the text structure can be presented in the form of a specific meta-language, that is, a system of terms and categories. Application of meta-language in text description allows identifying the structural frames of this text.

The study understand the dictum function as a function of providing objective information that does not depend on the evaluation or interpretation, that is, this function performs the presentation of facts in the text of court opinion. Modus function will be understood as a certain way of "fixing" the objective content of a particular communicative situation, that is, here this study is talking about actualization. The relation of the actual discourse content to a given moment of speech and to the participants of the communication is characterized by these actualizing modus categories.

A definite set of communicative senses is reflected in the respective modus functions forming a specific meta-category of modus in the judicial discourse. The function of this meta-category is to specify facts through the synthesis of the objective (that is, legally justified) and subjective (which include the position of the court, or of the judge) components of argumentative frame.

It seems that the judicial discourse is basically a certain distribution of clusters of these functions interspersed with elements of assessment, that is, here the study is talking about frames and frame slots. It should be noted that the concept of dictum and modus are associated with the concepts of subjectivization or authorization of statements which is essential for the text of court opinion. The subjectivity aspect is of particular importance to the texts of this type due to the possibility to choose a strategy of argumentation development.

As some researchers point out (Morra, 2010), traditional approach to interpretation involves the necessity of considering the figurative sense of an expression being recognized only after this one has been 'literally' processed.

As we have pointed out before the study of judicial discourse is closely connected with the problem of interpretation. According to Condor (2013) "the study of legal interpretation is necessarily a study in hermeneutics, the art and science of text interpretation" i.e., an operational aspect of the interpretation of the legal text, in the present case, the text of the court opinion. In this regard, the problem of developing meta-language description of the judicial discourse comes to the fore.

According to Trosborg (Trosborg, 1995) the category of meta-language includes the general notion of "language of people talking about the law", that is lawyer-client interactions, lawyer-to-lawyer conversations and language of textbooks.

Meta-language in our article is understood as a terminological framework, correlating with the conceptual apparatus of certain linguistic theory.

In the development of the meta-language, we proceeded from the fact that the judicial discourse is an argumentative discourse which, on the one hand, has such a property as intertextuality, and on the other - is based on verifiable dictum statements.

Following N. Chomsky information embedded in the text of the court opinion can be divided into three levels: context-free information (pure dictum); context-related information and the semantic level of information that has an assessment (i.e., modus). Accordingly, the function of discourse semantics can be purely informative (dictum) and operational (meta-modus), providing discursive dynamics.

The text of the court opinion (as a genre of argumentative discourse) is characterized by the combination of Dictum and Modus functions into clusters, forming slots of argumentative frames interspersed with elements of assessment. From this perspective, we understand the frame as a conceptual representation of the linguistic competence of the speakers at the discourse level in the form of quasi-syntactic structures to express communicative meanings.

On the test material we were able to identify and describe some characteristic features of variation of language representations in the most frequent frames. At a given scale of accuracy, we have identified eight basic frames, although we admit the possibility of identification of other frames:

- 1 Fact - classification of the fact
- 2 Presentation of the fact - classification of the fact
- 3 Fact – conditions for the fact's existence
- 4 Fact – competence of the fact's source
- 5 Presentation of the fact - competence of the fact's source
- 6 Fact - limits of verification
- 7 Fact - the statement of a goal
- 8 Fact - the presence / absence of the possibility of the existence of the fact.

Below we will provide examples of the argumentative frames analysis, picked from Research and Analysis part (N 2, 3, 9, 14). All examples correspond to different frames.

Frame: fact - the statement of a goal
Baily cites our holding in United States v. Baker, 499 F.2d 845, 848 (7th Cir. 1974) to support his proposition that Baily was simply "along for a ride", but his argument misses the mark.

In this text fragment the modus function of having a goal is clearly expressed, represented by the verb "to support". Predicate referent in this example is the accused himself, and we can observe a sufficiently large evaluation Modus. To create the assessment function the

author uses the citation of the testimony of the accused with the adverb “simply”, which in itself has certain assessment semantics, and used in preposition, enhances the modus. Using discourse marker “to miss the mark” (without merit) also serves to create a negative assessment of the facts. This purpose is also achieved by the use of lexeme “proposition” - a statement the truth of which needs to be verified.

Frame: fact - classification of the fact

This argument is a nonstarter. As long as the sentencing judge gives an adequate justification, the judge may impose a sentence above the guidelines range if he believes the range is too lenient. See *Gall v. United States*, 552 U.S. 38, 49-50 (2007); *United States v. Perez-Molina*, 627 F.3d 1049, 1050-1051 (7th Cir.2010), *United States v. McIntyre*, 531 F.3d 481, 483-84 (7th Cir. 2008); *United States v. McKinney*, 543 F.3d 911, 913-14 (7th Cir. 2008).

The representation of Modus function "classification of facts" uses the noun “nonstarter” - something doomed to failure, hopeless; that is, the lexis used in linguistic representation of this frame slot contains an evaluation component. Since the frame itself "representation of fact-classification of fact" is in the argumentative part of the court decision on appeal and it opens up the consideration of the arguments of the accused, the use of such language is designed to create an additional sense that this argument is not going to be accepted by the court.

The high degree of author’s confidence is created by using a reference to precedent. American texts of court decisions (Precedent system) are generally characterized by reference to the precedent as a specific way of expressing a high degree of confidence in what is being stated.

Frame: presentation of the fact - classification of the fact

Finally, Bolivar argues that the district court erroneously admitted his post-arrest statement to the police because, he insists, that statement about his knowledge of drugs arriving from Mexico only served to prove his propensity to commit bad acts. See *Fed. R. Evid. 404(b)*.

In this example, the function "presentation of fact" is expressed by Modus predicate “argue”. The "classification of facts" function contained in the subordinate clause with propositional “that” is expressed with an adverb predicative group “erroneously”. In this example the semantics of adverb “erroneously” contains a marked evaluation component. Strong assessment component is also conveyed by use of predicative group “he insists”; and a focal marker “only”, which in this case can be regarded as an evaluation by the criterion significance / insignificance.

Reference to precedent also serves as a way to implement Modus function of a high degree of confidence. The use of the sequence marker “finally” signals the

transition to a new argumentative micro topic.

Frame: fact - the presence / absence of the possibility of the existence of the fact

The Sentencing Guidelines allow a defendant’s offence level to be reduced by two levels when the defendant is a “minor participant” in the offence. *United States v. Emerson*, 501 F.3d 804, 815 (7th Cir. 2007).

In this example, the function of the "fact" in terms of the formal syntax is in the main clause, and it is expressed with a secondary objective predication. Dictum function here is introduced by a causative functor, represented by verb “to allow”, which also helps set the modal frame of the discourse fragment.

The "conditions for the fact’s existence" function is concentrated in a subordinate clause introduced with “when”, and is expressed with existential predicate in the form of simple tense and the term "minor participant", which is given in the form of a citation.

In this example, the expression of “conditions for the fact’s existence” function is similar to that of "a classification of fact" function, but the use of a temporal conjunction determines a different sense of the statements, i.e. there is a possibility of fact’s existence, provided that the defendant can be classified as a “minor participant” in the case. The same meaning is supported by reference in kataphora.

With regard to distribution of frames, we shall point out that their sequence in the text of the document is determined by the selected argumentative strategy. Strictly speaking these are two: a strategy in which the starting point is the argument of the appealing party and the second one is the strategy, where the argument of the court serves as the starting points. Within the chosen strategy there is a slight variation in distribution of frames.

Conclusion

The conducted experiment verifies the hypothesis, and the data obtained in the course of the research. The respondents indeed perceived the given discourse fragments as argumentative, and were able to distinguish different degree of “argumentative intensity” of the proposed fragments, which basically corresponded to their position in the text of court opinion.

1. Frames that open the argumentative part of court opinion or introduce a new micro topic tend to be more argumentatively loaded than others.
2. The argumentativity of these frames is achieved through the use of various linguistic means including syntax structuring, emotively coloured and evaluative lexis, use of references and citations.
3. Analyzing the material, the authors also came to conclusion that the use of numerous references to precedents is specific for American judicial discourse way

of creating high degree of author's confidence in what is being stated. This apparently happens as a result of the necessity to build the judicial discourse on verified statements in Anglo-Saxon legal system characterized by use of precedent in court practice.

The identified types of argumentative frames are by no means exhaustive, and this list can be expanded under more precise scale of delicacy. The study only aimed to demonstrate that the method of meta-language application for frame description works. The described linguistic means of discursive frames' manifestation as well as the developed meta-language can find its further application in linguo-didactic modeling of the professional legal discourse.

Conflict of Interests

The authors have not declared any conflict of interests.

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