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EJES, Team

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Perceptions of Preservice and Induction Physical Educators

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Abstract

This study examines the similarities and differences in perceptions of preservice and induction physical education teachers regarding their level of career preparedness and curricular preferences. Findings are based on interviews with 23 participants (12 preservice and 11 induction) from two Midwestern universities. Qualitative data from the structured interview questions designed for the study were collected and analyzed using content analysis and compared with the guiding theory. Trustworthiness for data collection and analysis was followed and validated by guidelines and recommendations (Lincoln & Guba, 1985; Patton, 2002). In addition, 39 individuals from the two universities were surveyed regarding teacher attitudes by utilizing a validated survey (Kulinna & Silverman, 1999). Qualitative data analysis revealed the following themes: a) Physical Education Teacher Education (PETE) programs may not adequately prepare induction teachers for the realities of the classroom environment; b) cross-curricular integrations are valued; and c) physical activity for a lifetime is a primary curricular outcome. Results suggest that PETE curriculum may need to be modified to provide increased fidelity in the induction years of physical educators. In addition, these themes signify the influence of the socialization process and its relevance to the realities of induction physical educators.

Keywords: Physical education, curriculum, teacher preparation.

Introduction

Almost all physical educators have opinions about the content of their curriculum and the teaching methodologies that should be employed. These beliefs are strongly influenced by previous experiences, including those embedded during the K-12 system as well as those encountered during undergraduate programs. These experiences may be beneficial or may hinder curricular choices once organizational socialization commences (Keay, 2009). When educators begin to employ philosophies instilled during physical education teacher education programs (PETE), some realize theory and practice may be vastly different. While a majority of research on physical education has focused on teaching (65%), less than 20% has focused on curriculum (Kulinna, Scrabis-Fletcher, Kodish, & Silverman, 2009), and to date, little research has been conducted specifically on the perception differences between preservice and induction physical educators toward preparedness, curricular outcomes, and teaching strategies. Therefore, the purpose of this study was to determine if differences existed between future and current teachers with regard to preparedness and PE curriculum.

Literature Review:

Historically, physical education curriculum has remained relatively unchanged despite the progression of interests and goals within the field. Some believe that the lack of change within the curriculum, even though curricular innovations exist, is directly related to difficulties with training physical educators (Keay, 2009). Research indicates that decisions regarding instruction and curriculum are made based on teachers' beliefs and knowledge (Bechtel & O'Sullivan, 2007; Ennis, 1995), and change in curriculum is, therefore, linked to the instructor's expertise and the strength of that individual's convictions. These views are then, in turn, linked to a willingness to try novel approaches or persevere through the process of changing the existing circumstances. Overall, change will happen more readily in supportive environments where administrators, colleagues, and students provide a nurturing, safe environment (Bechtel & O'Sullivan, 2007). For genuine durable change to occur, however, challenges of existing beliefs must take place. In order to begin to reconsider the values of the current physical education curriculum, learners may have to experience both the student and educator's perspectives (Timken & McNamee, 2012). If induction teachers enter an environment where a more traditional curriculum is valued, change may be especially difficult (Keay, 2009). District policies with an emphasis on other educational priorities such as mathematics and language arts coupled with a lack of professional development opportunities are also inversely related to change in curriculum, and professional development is especially critical because a lack of exposure to new

curricular models or instructional approaches hinders practitioner growth (Bechtel & O'Sullivan, 2007).

In addition to the aforementioned barriers to change, the physical education environment may contain several unique challenges. First, disparity exists between the perceptions of physical educators and administrators. Most principals (59%) feel their school's wellness policy is effective while only 35% of physical educators agree. In addition, most administrators are able to describe the changes to nutrition policies in the past few years, but many cannot describe significant changes to physical education policies (Graber, Woods, & O'Connor, 2012). Inadequate resources, including facilities and equipment, large class sizes, lack of respect, and limited contact with students all contribute to the difficulties encountered by induction teachers (Lynn & Woods, 2010). Research has shown even beginning teachers with strong PETE preparation can encounter difficulties in maintaining the necessary commitment to ensuring high-quality PE programs (Stroot & Whipple, 2003).

Given the considerable difficulties facing future physical educators, what continues to attract new teachers to the profession? For many, it's a love of activity and positive experiences with sports (Curtner-Smith, 2006), physical education, and physical activity in the past (Stran & Curtner-Smith, 2009; Timken & McNamee, 2012). Even those with previous negative experiences in physical education indicate this did not necessarily deter their subjective warrant but rather served to provide additional impetus for providing quality instruction (Keay, 2009). Overall, the process involved with becoming a teacher can be complicated. While the individual has a dynamic role in this career process, the institutions and influences of society also play critical roles (Graham, Cohn, Werner, & Woods, 1993). Influences of former teachers and coaches as well as family members can strongly inform an individual's desire to be a physical educator (Lawson, 1983a), and just like other professions, physical education can provide a means of socialization for all within its sphere of influence (Lawson, 1988).

In most cases, those who choose this profession follow a path that moves from recruitment into the profession, through professional socialization during undergraduate training, and finally into organizational socialization as the career cycle begins (Dewar & Lawson, 1984; Stran & Curtner Smith, 2009; Woods & Lynn, 2014). Each future physical educator brings a unique set of knowledge, preconceptions, and values to the field, some of which may be entirely different from the main philosophies of the group as a whole. In fact, significant contrasts in the conceptions related to teaching often exist between PETE students, student teachers, and cooperating teachers (Graham, Hohn, Werner, & Woods, 1993). However, in order for the culture and traditions of the field to remain consistent, more

experienced members must navigate potential differences that newcomers bring to the field (VanMaanen & Schein, 1979). Influence, in this regard, can primarily be exerted by students, colleagues, and administrators (Lee & Curtner-Smith, 2011). This is the process of socialization, and in the case of teacher socialization, the process is lengthy, beginning in the elementary years and continuing well into service within the profession (Keay, 20009).

Occupational Socialization

Teaching is a dynamic process, and socialization is unique to the context and individual; therefore, the theoretical framework of occupational socialization was chosen for this study because it specifically addresses how values and actions may be shaped by the complex process of socialization. The first stage of this process begins with acculturation. Taking place from early childhood until entry into preservice training, an individual gathers information about the profession through observation and interaction with parents, physical educators, and coaches (Richards & Templin, 2011). Lortie (1975) deemed this “apprenticeship of observation” as a critical component for engendering the group’s culture. By experiencing these influences first-hand, individuals develop strong beliefs, both positive and negative, regarding appropriate teaching practices and what it means to be a physical educator (Schempp & Graber, 1992; Stroot & Whipple, 2003). This phase may, in fact, be the most powerful of the socializing influences in physical education (Lee & Curtner-Smith, 2011).

After acculturation, the individual enters formal teacher education training, and professional socialization begins. The dissonance which may occur between the preconceived values and beliefs acquired during acculturation and the knowledge, values, and skills espoused by the undergraduate program often leads to hard choices. During this time, preservice teachers must make decisions regarding the fidelity of existing beliefs (Schempp & Graber, 1992). For future physical educators, PETE programs are the primary vehicle for professional socialization (Lawson, 1986), however, because physical education often requires future educators to learn certain roles (VanMaanen & Schein, 1979), PETE programs may exert a weak socializing influence (Lee & Curtner-Smith, 2011). To further complicate the process, professional socialization is competing against other forms of socialization, so the process itself is not automatic (Lawson, 1983a). As such, if assumptions made during the acculturation stage are not challenged, new information may not be readily used to inform future teaching practices (Timkin & McNamee, 2012) and this, in turn, influences the quality of physical education programs (Xiang, Lowy, & McBride, 2002).

Upon completion of professional training, a third type of socialization, organizational socialization, occurs as the individual enters the field. Learning the responsibilities, culture, and roles that exist within physical education swiftly takes place in the working environment. Organizational socialization, a crucial component of professional development (Laker & Jones, 1998), may help solidify the practices and values adopted during PETE programming (Lawson, 1983a), or if the value systems of the organization and individual are different a wash-out effect may occur as the new physical educator encounters the reality of the profession (Richards & Templin, 2011). The latter is especially true when the physical educator is hired into a large, bureaucratic organization (Lawson, 1986). If a PETE preparation program is inadequate or the new teacher faces the process alone, the results of organizational socialization can be extremely powerful (Lawson, 1983b). If the assumptions made during the acculturation stage are not challenged new information may not be readily used to inform teaching practices (Timkin & McNamee, 2012) and this, in turn, influences the quality of physical education programs (Xiang, Lowy, & McBride, 2002). Furthermore, the unique language, shared experiences, etiquette, and customs of the culture all serve to exert influence on beginning teachers (VanMaanen & Schein, 1979) and serve as a vehicle for passing beliefs and protocols on to the next generation (Lee & Curtner-Smith, 2011).

Encompassing all of these aforementioned types of socialization, acculturation, professional socialization, and organizational socialization, is the broader concept of occupational socialization (Dewar & Lawson, 1984; Stran & Curtner Smith, 2009). This overarching concept denotes all the influences that initially draw a person to the profession as well as those that are later responsible for the actions of the individual employed in the field (Lawson, 1986). Central to the concept of occupational socialization is the premise that many different forms of socialization may have overlapping, competing influences (Lawson, 1986). The power of this process is clearly evident when beginning teachers do not demonstrate fidelity to the knowledge and information regarding best practices learned during PETE (Lawson, 1986).

As preservice teachers begin to enter the profession, new responsibilities and challenges are encountered, and these individuals begin to establish their own professional place in the school's culture (Herbert & Worthy, 2001). Often, unrealistic expectations are created during the preservice years, and the difficulties encountered in the day-to-day work of teaching are substantial (Herbert & Worthy, 2001). In addition, entry into the physical education profession may be more difficult in cultures where marginalization and isolation exist (Richards & Templin, 2011). All of these factors may serve to accentuate potential differences in values

between those instilled during PETE programs and those espoused during the induction years. To this end, the primary research question was as follows:

What are the similarities and contrasts between the perceptions of preservice PETE students and induction K-12 physical educators regarding teacher preparedness and curricular outcomes?

Methods:

Participants & Settings

Participants for the study were selected from two Midwestern universities. The first university, State, is a large, public, research institution with a Carnegie Classification of Doctoral Universities: Highest Research Activity and a student enrollment of over 45,000. The second, Private, is a small, private, liberal-arts institution with a Carnegie Classification of Master's Colleges and Universities: Small Programs and an enrollment of approximately 1000 (Carnegie Foundation, 2017). Both universities offer PETE programs similar in curricular nature due to existing state standards and requirements.

The criteria for inclusion as a preservice teacher included enrollment in a PETE program and a current student teaching placement or placement within the next semester. The criteria for inclusion as an induction teacher included a K-12 PE certification as well as current employment as a first- or second-year physical educator. The classifications for preservice and induction teachers follow the model outlined by Fessler and Christensen (1992). Entry into each environment to recruit participants was secured only after receiving Institutional Review Board approval. Each institution provided a database containing contact information for preservice students as well as recent graduates. Initial contact during recruitment was secured through email, and willingness to participate was documented. Each participant was given a copy of the informed consent, including a full description of the study including risks and rewards.

Instruments

After obtaining consent, each recruit participated in one formal, semi-structured interview lasting approximately 45 minutes. In total, 11 (6 State + 5 Private) induction teachers and 12 (6 State + 6 Private) preservice teachers were interviewed. Interview guide questions were written to ask the same questions to both groups (preservice and induction) but adjustments in wording were made to cater the questions to the audience. Induction teachers were asked 13 questions, compared to 10 for preservice teachers, to gather additional information on their curriculums and perceptions of preparedness. To further ensure continuity and decrease

variation, all questions were prepared in advance, and during each interview, the questions were asked in a uniform order and manner (Patton, 2002). In some cases, additional follow-up questions were asked to further facilitate data collection. Questions in both interview guides focused on goals for physical education, teaching strategies, and factors influencing change in PE curriculum. In order to prevent bias, all participants were interviewed by individuals on the research team with whom they had no previous interaction. Each interview was audio recorded and later transcribed.

In conjunction with interviews, an online survey, validated by Kulinna and Silverman (1999), was employed to gather demographic information with Likert-type responses to questions regarding teachers' attitudes toward curriculum in physical education. This instrument was disseminated to a pool of 60 potential participants from the aforementioned university databases, including those participants previously interviewed. In all, 39 individuals completed the survey, including 25 preservice and 14 induction teachers. All preservice participants had no formal teaching experience and were engaged in the last year of PETE training. Induction respondents, 12 primary and 2 secondary full-time physical educators, had a mean of 1.09 years of experience. Participants' self-identified race and ethnicity was predominantly Caucasian (78%) followed by Hispanic (11%), African-American (5%), Asian-American (3%), and Pacific Islander (3%). Survey questions, 36 total, focused on the following domains: a) physical activity and fitness; b) individual development; c) motor skill development; and d) social development. Respondents rated their beliefs regarding questions in each domain with the following scale: 1 = extremely important, 2 = very important, 3 = somewhat important, 4 = not very important, and 5 = not important. Willingness to answer survey questions signified each individual's desire to participate, and an IRB approval for a waiver of documentation of consent was obtained prior to data collection for the survey. Similar to the interview process, pseudonyms were assigned for all survey participants.

Data Analysis

Interview data were analyzed using Huberman and Miles' process (1994). The process started with data collection, and during this stage initial themes were recorded. Second, data reduction included further coding into themes and reduction of irrelevant data. Third, data display entailed organizing the themes into categories and visual displays to further examine the data. Finally, data and themes were compared to the guiding theory (Huberman & Miles, 1994).

Survey data were analyzed using SPSS 22. Demographic information and descriptive statistics were used to triangulate interview findings related

to curricular preferences. To do this, groups were divided by domains and population (Private College preservice teachers, State University preservice teachers, Private College induction teachers, and State University induction teachers). Finally, comparisons were made between preservice and induction teachers without separating programs.

Trustworthiness

In order to enhance trustworthiness, multiple methods consistent with techniques outlined by Lincoln and Guba (1985) were employed during this study, including: a) an audit trail; b) member checking; c) cross-checking for negative cases; d) investigator triangulation; e) data source triangulation; and f) use of participants' quotes. An audit trail was created to specifically document the methodology used to conduct this study. Documents in the audit trail included all raw interview data, transcripts, coded documents, and the contact database. Member checking was used to verify accuracy of data gathered during interviews (Patton, 2002). Transcriptions were supplied to each participant to confirm the quality of the documents. Cross-checking for negative cases occurred during data analysis, and the researchers working as a team continued to discuss results and themes throughout the process. Finally, direct quotes were used as another means to accurately portray the views of the participants.

Results:

Themes and subthemes emerged during the analysis of each group (Private preservice, State preservice, Private induction, and State induction) regarding the role of PETE in teacher preparadness, lifetime physical activity, and other subject areas (math, English, etc.) in curriculum preparation. The themes of both preservice groups were then compared to those of the induction groups to provide additional information. In total, three predominant themes were identified regarding classroom management, cross-curricular activities, and curricular outcomes.

Theme 1: Physical Education Teacher Education (PETE) programs may not adequately prepare induction teachers for the realities of the classroom environment.

The majority of preservice and induction teachers expressed that their knowledge, skills, values, and sensitivities during curriculum development were influenced by their respective PETE programs. Timothy, a Private University preservice teacher, summarized the sentiments of the group when he described his level of preparation with the following words: "It would definitely have to be just from taking classes at school and from my professors at school. They've all done a really good job in teaching me close to

everything that I know right now.” Yet, despite statements to this effect, when induction teachers were questioned about ways they were prepared to deal with classroom challenges in physical education, only two induction teachers mentioned their PETE program and professors as a primary source of preparation. In contrast, several mentioned that their university did not adequately prepare them for the realities of teaching. Mr. Zigg, a State University induction teacher, noted that “there was no class at (State) that prepared me for anything of that management that I had to deal with [in my job].”

In terms of challenges, classroom management was mentioned as an area of frustration by many of the induction teachers during interviews and identified as an important aspect of effective teaching during the survey. In fact, despite their vast differences in Carnegie classification, students and induction teachers from both universities believed that classroom management was one of the biggest challenges facing induction teachers. Ms. Rolf, a Private University induction teacher, stated, “It doesn’t matter how many times you go over the safety in a setting like a classroom. I was not prepared for all the issues that I would have with the kids the first semester.” Survey data revealed that both induction teachers and preservice teachers believe an important characteristic of a physically-educated person is responsible personal and social behavior during physical activity. This was indicated by a mean response of 1.7 ($SD = 0.6$). In addition, 34 of 39 participants rated this characteristic as either extremely important or very important. To that point, Mr. Renfro, a State University induction teacher, expressed during an interview that classroom management should be an emphasis of PETE. In the end, even though most indicated that they valued the content taught in their respective PETE programs, the lack of experience with classroom management seemed to have the largest overall impact on the perceptions of the group.

Theme 2: Cross-curricular integrations are valued.

A majority of the preservice and induction teachers believed that other school subjects and teachers play a critical role in the curricular choices within physical education. Many of the students and teachers felt it was important to include cross-curricular activities within the curriculum, although their reasons for doing so varied.

To start, several students and teachers mentioned that physical education should incorporate activities that include curricular content from other core subjects. Marty, a State University preservice teacher explained his intentions with the following words: “I would like to be able to incorporate what students are learning in other classes into PE. I’m not doing it right now, but when I become a teacher, I would envision myself communicating a lot

with other teachers in the school and trying to incorporate different units in math and science and all those classes and incorporate it into PE.” Similarly, Winston, a Private University preservice teacher, stated that he “would like to incorporate other subjects into PE.”

In addition, the need for increased collaboration between physical educators and other teachers to promote each other’s content area was also expressed during interviews. Some stated that they saw this as a way to reinforce multiple subject curriculums at the same time. Bill, a State University preservice teacher, felt that some natural integrations existed, especially between mathematics and physical education. Ms. Peters, a Private University induction teacher, understood the importance of “constant communication” in that process and the mutual learning it could provide for both students and teachers.

Theme 3: Physical activity for a lifetime is a primary curricular outcome.

Along with skill development and enjoyment of physical activity, a recurring theme within both populations was the concept of promoting physical activity for a lifetime. It was a persistent response during questions regarding both the purpose and outcomes of PE. Carol, a Private University preservice teacher, stated, “Physical activity isn’t just something that should be taking place in school, but it needs to be something that you’re building on for a lifetime.” Similarly, Karen, a State University preservice teacher, felt that physical education “should be a place where students can learn different ways of staying healthy that they’re able to use outside of the classroom outside the school...so they’ll feel comfortable once they leave the school to continue working out and staying healthy”, and Ms. Azaro, a State University induction teacher, summarized the sentiments of the group with the following words:

“I want kids to walk away with...knowing that physical activity is vital to life. I just really want them to take things we learn and just apply them to real life. ‘Cause they’re only in school for so long, and so, I think that as a teacher you’re supposed to try and mold them, so they can go out and do things on their own.”

Survey data regarding this theme substantiate the qualitative interview results. In responding to physical education goals and programmatic foci, the vast majority, 90% of participants, rated developing components of health-related fitness and promoting the development of motor skills for the participation in a variety of sport activities as either very important or extremely important. While these results indicate consensus within the overall group, contrasting emphases between preservice and induction groups were noted. In working toward achieving the end result, preservice teachers most readily identified a need for students to develop aspects of personal growth,

such as an increased self-concept, while induction teachers emphasized competency in developing physical skills, such as those related to health-related fitness and motor skill proficiency.

In addition, the overwhelming majority of participants, 95% and 87%, rated promoting regular physical activity habits and developing health benefits from participation in physical activities as either very important or extremely important, respectively. The latter, healthy benefits, was especially emphasized among the responses of preservice teachers. Enjoyment during participation was also important to survey respondents. All groups rated this category highest when selecting the traits of a physically-educated person, and overall, 90% identified this characteristic as either very important or extremely important.

Discussion:

This study was designed to compare and contrast perceptions of preparedness, curriculum outcomes, and teaching strategies among preservice and induction teachers. The first theme revealed during data collection indicated the importance both groups placed on adequate PETE preparation. Both preservice and induction teachers believed that classroom management was a major issue facing physical educators. In fact, focusing on classroom management issues may result in decreased time spent in physical activity, and it has been postulated that teachers over time decrease their standards for physical education because students' motivation and behavior are low (Ennis, 1995). Additionally, the concerns preservice teachers have regarding management and discipline issues remain persistent despite attempts to refocus attention on students (Woods, Goc Karp, & Escamilla, 2000). Over time, chronic issues with student behavior may lead to wash-out, a period of time when the influence of the professional program decreases (Zeichner & Tabachnick, 1981). Factors inducing wash-out include lack of facilities, lack of prestige and respect, the devaluing subculture of other teachers, and desire for acceptance (Blankenship & Coleman, 2009). In this study specifically, teachers faced wash-out inducing factors such as lack of physical gym space, large class sizes, lack of equipment, and the added pressure of student behavior issues. These contextual factors hinder progress in physical education (Goodlad, Soder, & Sirotnik, 1990) (Griffen, 1985) and serve to create an "institutional press" where new ideas and practices are disregarded (Zeichner & Tabachnik, 1981).

Additionally, induction teachers stated that their PETE programs shaped their knowledge, skills, values and sensitivities; however, as these same teachers navigated challenges inside and outside the classroom, the strategies they utilized were often not derivatives of their professional socialization but rather part of their organizational socialization. In other

words, strategies embedded during pre-service teaching may not be utilized, especially if they do not seem applicable to real world situations. This disconnect may be addressed by focusing PETE programs on best practices and innovative strategies, rather than on traditional methods which reinforce rather than challenge the status quo (Timken & McNamee, 2012). PETE programs should take steps to ensure that individuals are equipped with the necessary strategies to deal with challenging occupational socialization issues (Lux & McCullick, 2011; Richards, Templin, & Gaudreault, 2013). Successful PETE outcomes should prepare induction teachers to navigate these adverse conditions and decrease reality shock, the difference between ideals modeled during teacher training and the reality of day-to-day experiences in the classroom (Veeman, 1984).

More authentic field experience and classroom discussions about problematic issues that teachers may face will decrease reality shock and, perhaps, increase the effectiveness of professional socialization. Early field experiences may directly help teachers navigate behavioral management issues and provide positive influences on the development of preservice efficacy levels and teaching skills by providing opportunities to gain experience through observation, simulation, tutoring, and small group instruction (Clift & Brady, 2005). Additionally, in order for recent graduates to utilize sound pedagogy and focus on the curricula prescribed by quality PETE programs, it may be beneficial to provide intentional avenues where preservice students can practice implementing managerial skills relevant to newly-hired physical educators, better informing their focus on curriculum content in the field while limiting the potential for wash-out and reality shock.

With the second theme, the value of cross-curricular integrations, it is important to note the current emphasis placed on this concept for both preservice and induction teachers. Unlike the previous theme, this is one PETE value that remains consistent, even in the early years of teaching. Cross-curricular knowledge has been shown to increase literacy (Mears, 2003) as well as increase participation and enjoyment of physical education (Stivaktaki, Mountakis, & Bournelli, 2010). While integration of classroom content into the P.E. curriculum is definitely beneficial for students, it does require intentionality on the part of the physical educator. A desire to build relationships with other classroom teachers as well having access to the time and resources required to adapt activities would be crucial components of this process. Because the instructional behaviors of teachers and learning outcomes for students are influenced by pre-existing beliefs (Xiang, Lowy, & McBride, 2002), emphasis on cross-curricular integration of content into P.E. will continue to be an extremely important component of PETE curricula. Additionally, students can benefit from both observing and

providing samples of content integration strategies in controlled, clinical environments.

For the last theme, interview and survey questions indicated an emphasis on developing skills and teaching strategies to aid students in acquiring the skills necessary to stay active throughout life. Congruently, as cited in the literature, the main goal of physical education is to prepare youth for a lifetime of physical activity and provide them with physical activity during physical education classes (Sallis et al., 2012). Similarly, Biddle, Gorely, and Stensel (2004) state that it is “established beyond any reasonable doubt, and widely accepted across societies, that regular participation in physical activity is an essential component of a healthy lifestyle” (p.683). Links between physical inactivity and chronic disease abound in the research, and the media continues to provide coverage of the issue with high profile intervention strategies such as the National Football League’s “Fuel Up to Play 60” campaign (Fuel Up to Play 60, 2017). With obesity rates for children ages 6-11 nearing 20%, this issue is likely to remain a strong influence in P.E. curriculums in the future (Centers for Disease Control, 2013).

In working toward that end, the results suggest a shift between preservice to induction. Induction teachers felt compelled to focus on helping students develop skills in the psychomotor domain rather than the affective domain as identified by the majority of preservice participants. This dissonance demonstrates an altering of perception between preservice training and induction status, with induction teachers shifting their focus from intrapersonal skills to creating students who can readily apply lifespan fitness skills. The largest barrier for the implementation of the goals within this theme, as identified by interview data, may simply be developing expertise in learning how to incorporate the concept of lifetime physical activity in the curriculum. This also corroborates the results within the first theme whereby participants felt underprepared for some aspects of induction.

Implications:

Based on analysis, two major implications emerged due to the findings of this study. First, this study suggests a disconnect between PETE pedagogy and the required managerial knowledge necessary for beginning teachers. Perceptions of important curriculum content among induction teachers may not be thoroughly addressed through PETE programming. Teaching philosophies and value orientations such as instilling lifespan physical activity, using cross-curricular integrations, and providing appropriate vehicles for student choice were strongly evident in this research, but PETE programs need to provide the knowledge necessary to bridge the gap between what preservice teachers learn and what induction teachers need. It has been noted that “knowing about” a particular curricular approach is not the same as

“knowing how” to use that knowledge in practice (McMahon & MacPhail, 2007). Implementation of early, authentic field experiences may aid the application process.

Second, even graduates from high-quality PETE programs find contextual factors in the field can and do limit curricular choices. The physical environment of the school significantly impacts not only the quality of physical education, but also the quantity of physical education (Chow, McKenzie, & Louie, 2009). For example, a physical educator with a strong belief in cross-curricular activities may be limited in the amount of content integration by a lack of space, equipment, or even student behavior. PETE programs must provide a more realistic representation of the working environment along with practical strategies for mediating barriers faced by induction teachers. In addition, it may be necessary for PETE programs need to ensure that cross-curricular efforts do not limit our state and national physical education standards.

Limitations:

Overall, this research did not have the capacity to address the extent to which induction teachers applied theoretical knowledge gained from their PETE programs. In addition, this research only uncovered themes for a specific population during a finite data collection period. While results from this study may not be generalizable to all populations, it is our hope that this research can be utilized to spark discussion among PETE faculty and students. Future research, with a longitudinal approach, should focus on changes in teaching philosophy and perceptions throughout the entire career cycle in order to understand how a shift in career stages might impact the perceptions of individuals from the same PETE program (Woods & Lynn, 2001). Data collected from a larger population across a diverse variety of institutions may substantiate the overall significance of subsequent studies.

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The Impact of Free Primary Education Inputs On Educational Outcomes in Kenya (2003 To 2013): The Rate of Enrolment and Retention at Primary School Level as a Factor

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Abstract

Free Primary Education Initiative has been running for more than a decade and its purpose has been to help Kenya achieve equity, parity, quality and higher retention rate in primary schools. This study investigated the impact of FPE inputs on educational outcomes in Kenya. The objective of the study was to determine the rates of enrolment and retention at Primary school level. Random sampling was used for data collection at school level; purposive sampling for teachers namely Head teachers, Deputy Head teachers and senior teachers. Out of a population frame of 641 schools and 7776 teachers from the ten Sub-Counties in Nakuru County, the sample comprised of 384 teachers from 128 primary Schools. Data was collected using questionnaires for teachers and Interview Schedules for the Quality Assurance and Standards Officers and Education officers. The study used both Descriptive and Inferential Statistics for analysis. The findings, therefore confirm an increased rate of enrolment and retention rate. The findings are intended to influence the Government to enhance provision of quality education. This study was also intended to make the government re-asses its education policy and budget allocation so that they target educational inputs that would have the greatest influence on learning outcomes.

Keywords: Enrolment, Retention, Inputs, Outcomes.

Introduction

Background

Education has been considered a basic human right since 1948 with the universal Declaration of human rights and is meant to be accessible to all people. In pursuit of these goals, UNESCO organized a conference at Jomtien, Thailand in 1990 to discuss ways of achieving the goal of education for all and lifelong education. The delegates agreed that there was need to ensure all school age children were provided with an opportunity to enrol (GOK, 2006).

Heyneman (2007) on a study in Uganda posits that specific education inputs generally matter more in developing countries than in developed. Financial resources available to a school system are an input to the school and their availability is crucial in developing countries. Other factors that describe the resources that go into the school system include, teachers' qualifications and instructional materials, recruitment of teachers, an empowered school development Committee, curriculum implementation and in service of teach. This study considered instructional materials, infrastructure and remuneration (Paying support staff). Education outcomes mean how good pupils learn and the extent to which their education translates into a range of personal, social and development benefits.

The outcomes were expressed in a broader social and economic gains, enrolment and retention trends, dropout rates and transition to secondary schools, gender parity and quality UNESCO (2008). Sub-Saharan Africa's Gross Intake Rate (GIR), which registers the number of new entrants regardless of age, recorded the biggest increase in the world between 1999 and 2006 by 22% (UNESCO, 2009). Kenya is among the five African countries in Sub-Saharan Africa that has abolished Primary School tuition (offering FPE) to strengthen provision of quality education. In 2007 the gross enrolment rate rose to 112.4% and the net enrolment rate stood at 86.5% (UNESCO, 2007). The Enrolment in Primary Schools has increased from 5.9 million in 2003 to 8.6 million in 2009.

Research Problem

Despite the massive funding on the part of the government to Education; 2011 (13.5% of National budget); 2012 (23% of National budget); 2013 (25% of National budget); 2014 (27% of National budget), critical educational indices of attainment such as enrolment, retention and performance remain a concern (KNBS, 2014). According to the World Bank report published in 2010, the school enrolment in primary in Kenya was 82.75% in 2009. It has not been steady as in 2006 it was 86.27% but declined in Jan 2008 to 82.78. According to an Institute of Statistics study carried out between 1970 to 2009 gross enrolments declined between 2005 and 2006 as it

increased from 106.90% to 107.05% only to decline in 2006 to 105.58. (UNESCO 2010).

The above statistics indicate that if nothing is done, the attainment of EFA and vision 2030 will remain elusive despite the massive infusion of funds through the FPE initiatives.

Purpose for the Study

The purpose of this study was to assess the impact of FPE inputs on educational outcomes in Kenya namely, enrolment and retention at primary level between 2003 to 2013.

Objective of the Study

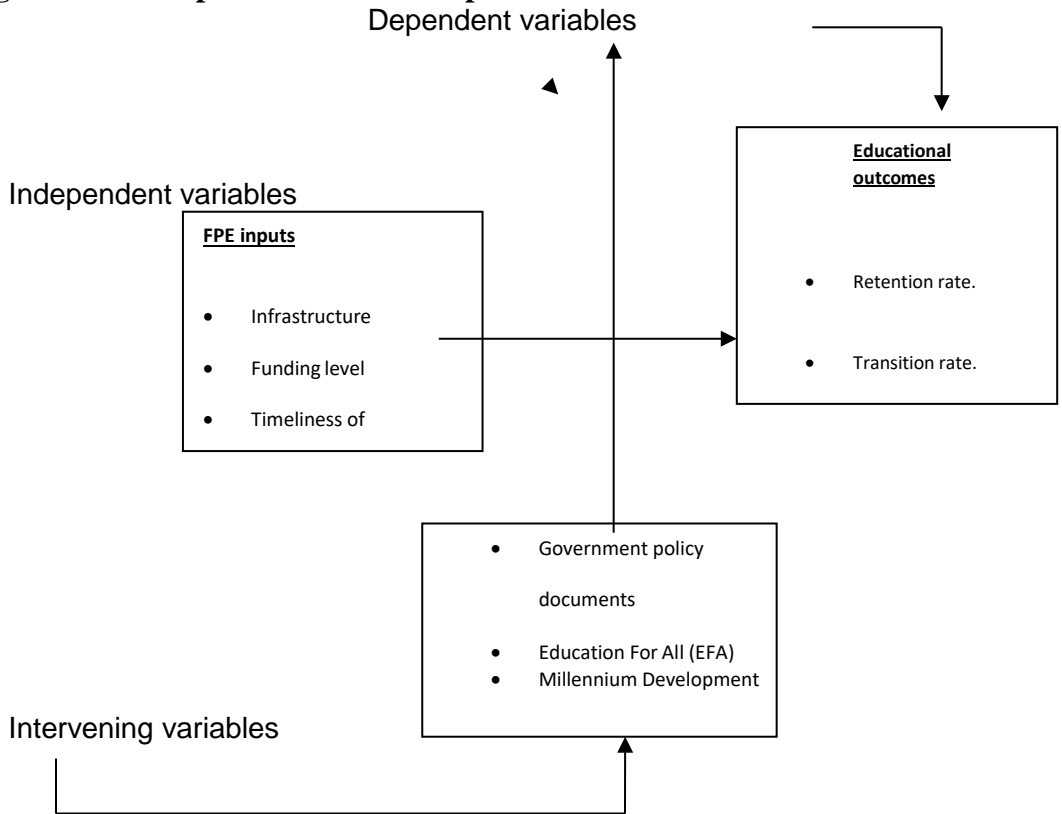
To determine the Rate of Enrolment and Retention at Primary School Level.

Theoretical Framework

The study was based on the Education Production Function Theory to estimate determinants of learning outcomes. A production function specifies the output of a firm, an industry, or an entire economy for all combinations of inputs (Hanushek, 2007). Although schools are not profit-maximizing firms, the framework treats them as production units on the supply side. Production function studies have been used extensively to identify factors that “produce” good learning outcomes.

Conceptual Framework

Figure 1: The implications of FPE inputs on educational outcomes.



Since education is important in National Development, the government must find out what can be done to improve learning in public primary schools. The study consisted of the relationship between funding and disbursement, school accountability and instructional materials, were considered as the Independent Variables likely to affect Educational outcomes in this case.

Retention and Enrolments rate. It is only through the educational outcomes that the country will achieve the objectives of Sessional Paper No.14 of 2012, Vision 2030, MDGs and finally EFA goals.

Figure 1 shows the conceptual model, which encompasses the major variables and their patterns of influence on each other and eventually on Educational outcomes in public schools. Due to FPE inputs more students joined school and while 85 percent of primary school-aged children are enrolled in school worldwide, these higher levels of enrolment may not be translated into increased learning for students in Kenya, as the quality of education is questionable. This may be due in part, to lack of proper school materials, which are often under supplied to poorer or more remote areas.

There is a widespread belief that the provision of school materials can substantially improve educational outcomes in rural, underdeveloped areas, however there is little empirical evidence to confirm this.

Literature Review

The Independent variable here is FPE inputs while the dependent is Educational outcomes. The themes under which the following literature is reviewed are: the rationale for education for all (EFA), FPE inputs in developed and developing countries, FPE Inputs in Sub-Saharan Africa, on inputs in Kenya and FPE Inputs versus Educational outcomes in Kenya.

The Rationale for Education for All (EFA)

The six EFA goals include major reforms in the Education Sector (GOK, 2007) were:

i) Expanding and improving comprehensive early childhood care and education, especially for the most vulnerable and disadvantaged children ii) Ensuring that by 2015 all children particularly girls, children in difficult circumstances and those belonging to ethnic minorities, have access to and complete, free and compulsory Primary Education of good quality iii) Ensuring that the learning needs of all young people and adults are met through equitable access to appropriate learning and life skills programs iv) Achieving a 50% improvement in levels of Adult Literacy by 2015, especially for women, and equitable access to basic and continuing education for all adults v) Eliminating gender disparities in Primary and Secondary Education by 2005 and achieving gender quality in education by 2015, with a focus of ensuring girls full and equal access to and achievement in basic education of good quality and vi) Improving all aspects of the Quality of Education and ensuring excellence of all so that recognized and measurable learning outcomes are achieved by all, especially in literacy, numeracy and essential life skills.

Education for All Development Index measures the extent to which countries are meeting four of the six EFA goals which are: UPE, gender parity, literacy and quality. Several countries – including some of the poorest sharply improved their EFA achievement levels between 1998 and 2001. This indicates that poverty is not a barrier to rapid progress towards EFA. On the other hand, low standards of education characterize Sub-Saharan Africa, the Arab States and South and West Asia.

Educational Outcomes

Educational outcomes are broadly conceived as literacy, numeracy and life skills, creative and emotional skills, values and the social benefits of education. Whilst the quality of education depends on learner characteristics and system inputs, the implication is that quality is evidenced by outcomes.

Knowledge and cognitive skills because they are relatively value-neutral compared to other educational goals and hence more amenable to measurement through standardized testing (UNESCO, 2002). The five dimensions of the UNICEF framework are defined as (i) what learners bring to learning; (ii) learning environments; (iii) content; (iv) processes (v) outcomes.

Educational Inputs and Outcomes in Developed Countries

Hanushek (2007), in his recent review of production function studies in the United States showed average spending to have risen over time while test scores remained flat, a problem he attributes to the weak effect of school inputs. His subsequent review in developing countries reached essentially the same conclusion. He found the traditional approach to improving student outcomes— increasing inputs — to be an ineffective policy option, given that no systematic relationship can be found between inputs in the aggregate and test scores.

FPE Inputs in Sub- Saharan Africa

While the Sub-Saharan governments continues to receive credit due to increase in enrolment and availability of textbooks in schools, (with pupil textbook ratio 2:1 in some schools) the Education for All Global monitoring reports indicate that the quality of education remains poor in most Sub-Saharan countries including Kenya. Nigeria has implemented Free Primary Education on and off since the 1950s and 2003, with literacy level still at 55 % (Aj etombi & Ayanwale, 2005). Figures from UNESCO's 2010 Education for All Global Monitoring Report shows that the region's children are still missing out. According to Ondego (2008), from the more than 1.5 million who enrolled, only about 500,000 sat Kenya Certificate of Primary Education examination. The challenge is not just enrolment but also maintaining the enrolled children in school. However, Wasanga, Ambia and Mwai (2010), say that at Primary school level, there is no systematic monitoring of who drops out and why.

FPE Inputs vs. Educational Outcomes in Kenya

Following the NARC government initiative, the number of primary school pupils all over Kenya increased by 18% from 6.06 million pupils in 2002 to 7.16 million pupils in 2003 a remarkable increase as rates of annual increase before the FPE initiative had been less than 1% (Government of Kenya 2004) enrolment continued to rise phenomenally from 5.9 million in 2002 to 8 million in 2007. Ogola (2010) on challenges of FPE, observed that there are mixed ages in the schools with some having overage pupils. In his

interview with teachers, he emerged that there were pupils with thirteen years in class two and twenty years in class eight.

In a speech delivered at the 34th UNESCO general conference in 2007, Kenya's minister for education indicated that the gross enrolment rate was 112.4% and the net enrolment rate stood at 86.5..With classrooms originally meant for 40 children now accommodating up to 80 children (such as in Nairobi slums), there is a real concern that this will impact negatively on the quality of teaching and learning This is echoed by Wax (2003) who writes that some Kenyan students had not even been able to formally meet their teacher, with a line forming after class each day just to shake the teacher's hand.

In the past decade all three governments (Kenya, Uganda and Tanzania) in the region have increased spending by up to threefold, and now allocate upwards of 6% of their GDP to the education sector .According to SACMEQ III(2011) Primary schools in Kenya can also access government funding for construction and improvement of facilities through the Constituency Development Fund (CDF) A reason these investments are not yielding better results may be explained by their being spent on aspects that are not the biggest drivers of learning. The bulk of government expenditure goes toward construction and teachers' salaries, but there is little evidence to show that these measures are strongly linked to improved learning

Research Methodology

This study adopted a pragmatic world view in its philosophical paradigm to investigate the Impact of FPE Inputs on Educational Outcomes at Primary Schools in Kenya. This pragmatic option allows for a mixed methods approach to the design of the study, engaging both qualitative and quantitative methods. Pragmatism as a worldview arises out of actions, situations, and consequences rather than antecedent conditions. There is concern with applications –what works- and solutions to problems (Patton, 1990).It is more than simply collecting and analysing both kinds of data; it also involves the use of both approaches in tandem so that the overall strength of a study is greater than either qualitative or quantitative research (Creswell, 2009).

The population of the study involved Public Primary Schools since there has been FPE input in all the public primary schools. It involved Head teachers, Deputy Head teachers, senior teachers, Sub- County Quality Assurance and Standards Officers and Sub-County Education Officers, since they are directly involved in the implementation and evaluation of Free Primary Education.

The sample and sampling procedure of the study involved 641 schools with a population of 7776 teachers. According to Krejcie &Morgan (1970) table this gave a sample size of 366 statistically. 366 were distributed proportionately based on the simple ratio of the number of schools per sub-

county. This distribution gained 18 questionnaires for Nakuru East, Nakuru West-18, Njoro-46, Naivasha-40, Gilgil-34, Nakuru North-20, Molo-28, Rongai-40, Subukia-22, Kuresoi-98. This added up to 366. However, only 360 were returned by the respondents. A random sampling was done in order to get the schools where questionnaires were to be administered to the Head teacher, Deputy Head teacher and senior teacher. In each school therefore 3 questionnaires were administered. The study also involved 3 Quality Assurance and Standards Officers and 3 Sub- County Education Officers. The Quality Assurance and Standards Officers were from Subukia, Nakuru North and Nakuru with average populations while the Sub- County Education Officers were from Kuresoi, Naivasha and Nakuru (East and West).

The research used two instruments for the study that is, questionnaires and interview guide. Cronbach's Alpha was used to test the reliability of the instrument. In this case the researcher tested the reliability in Baringo County where piloting was done to test scores obtained by each respondent over the first and second test. The questionnaires were piloted with a small representative sample population (15 respondents) identical to, but not included in the final sample group in the study.

The data collected was subjected to mixed method analysis approach. The sample size of the study was 360 subjects, which can allow the generalization of the study. Descriptive statistics like, mean, mode, frequencies, percentages, tables, and charts were used. Data was collected by means of both questionnaires and interview schedules. Questionnaires were the major instrument as all the Head teachers, Deputy head teachers and Senior teachers totalling 360 used it while only 3 Sub-county Quality Assurance and Standards Officers and 3 Sub –County Directors of Education were subjected to Interview Schedules.

Findings/Results

Rate of enrolment and retention at primary school level

The constructs needed to measure the rate of enrolment and retention were: class sizes, Teacher: Pupil ratio, pupil participation, dropout ratio, retention ratio, multishift, classroom construction, transition rate and gender parity.

Increase in Class Sizes since Inception of FPE

Out of the 360 respondents who were asked to comment on the increase in class sizes, the response rate was 96.7%

Table 1: Increase in Class Sizes since Inception of FPE

Responses	Frequency	Percent
No increase	8	2.2
Minimal	8	2.2
Increase High	101	28.1
increase Total	231	64.2
	348	96.7

Respondents were asked to state if their schools had seen increases in class size as shown in Table 1 and 92.3% said they had seen increases in class size while 4.5 % thought otherwise. This statistic is in line with the figures in GOK (2007) that revealed an influx of 1.5 million children in school at the inception of FPE. It mirrors the situation in Sub- Saharan Africa by UNESCO (2010) where enrolments are generally on the rise. Over enrolment influences the quality of education. It triggers a chain reaction touching on teacher and facility adequacy, teaching method, sitting arrangement, working space, examination and assessment, sanitation among other things. The present primary school teacher is trained to handle an average of forty pupils per class.

Pupil: Teacher: Pupil Ratios

In this study 95.8% of the respondents made comments on whether teacher: pupil ratios were acceptable.

Table 2 Teacher: Pupil Ratios

Responses	Frequency	Percent
Very inappropriate Not appropriate	99	27.5
Appropriate	166	46.1
Very appropriate Total	68	18.9
	12	3.3
	345	95.8

When asked whether the pupil: teacher ratios were acceptable, most respondents said they were not appropriate. This is confirmed by the TSC Annual Report-2009 which shows the total number of teachers on duty verses the curriculum based established (CBE), and the shortage in various public primary schools. The report further amplifies the deficiency in teacher numbers in view of the establishment of an additional 8000 new primary schools since the introduction of FPE. A much larger teacher workforce is needed to respond to the burgeoning class size, this demand is rarely met. UNESCO (2005), in its nationally representative study of the implementation of FPE in Kenya revealed that the average school visited was short of two to three teachers. This agrees with the findings in this study.

Individual Attention from Teachers to Pupils

Respondents were asked if pupils get individual attention from their teachers and 96.4 responded.

Table 3 Individual Attention from Teachers to Pupils

Response	Frequency	Percent
No attention Minimal	72	20.0
attention Due attention	163	45.3
All the attention	99	27.5
Total	13	3.6
	347	96.4

On whether pupils were getting individual attention from their teachers, it came out clearly from 45.3% of the respondents that they got minimal attention while 31.1% said that they got enough attention. This implies that high enrolment amidst diminished teacher numbers affects the interaction levels between the teacher and the pupil negatively. Slow learners then become disadvantaged. An increased pupil population poses serious challenges to classrooms interactions resulting in high demand for teachers in the 18,000 plus primary schools in the country (GOK, 2004). Teacher shortages has led to a high teacher: pupil ratio; in some schools that ratio is 1:70, 1:80 or even 1:100; this exceeds the recommended maximum rate of one teacher to 40 learners, that is 1:40. This makes it difficult for teachers to pay attention to all learners, give adequate assignments to the pupils or even to inculcate discipline among their pupils.

Large class size also leads to teachers' inability to provide attention to individual pupils. Wax (2003) writes that some Kenyan students had not even been able to formally meet their teacher, with a line forming after class each day just to shake the teacher's hand. Within the classroom, teachers had to yell to be heard and some even used megaphones to teach the large number of pupils. Teachers have also resorted to less participatory approaches to learning.

There is, however, some indication that teachers have developed creative ways to cope with their overflowing classes. In Malawi, as observed by Croft (2002), effective teachers had adapted their curriculum by using songs to teach specific subject material. Teachers used songs to keep children occupied while they wrote on the board, to call children to the start of class, and to signal a change in subject or activity.

Pupils Participation

Out of the 360 respondents who were asked whether pupils got opportunities to participate, 95.6% gave various answers

Table 4: Pupils Participation

Responses	Frequency	Percent
No attention	10	2.8
Not sure	68	18.9
Sometimes	236	65.6
Always Total	30	8.3
	344	95.6

The respondents were asked to indicate the level of participation by the pupils in class. In Table 4, 21.7% believed pupils did not get the opportunity to participate while 73.9% said at times they got. The data analysed shows that despite the high enrolment rate, pupils still got a chance to take part in class activities. Despite the lack of individual attention given to pupils there is a consensus that they participated. That there is not enough interaction between a teacher and the learner is impacting negatively on the quality of education in public primary schools.

Dropout Rate

Respondents were asked if the dropout rate has gone down since the inception of FPE and the response rate was 96.1%.

Table 5: Dropout Rate

Responses	Frequency	Percent
Increased Slightly	17	4.7
increased Decreased	60	16.7
Slightly decreased Total	194	53.9
	75	20.8
	346	96.1

On dropout rate 21.4% of the respondents felt that it is has increased while 74.7% opined that since the inception of FPE, many pupils have remained in school as shown in Table 5. The dropout rate could have decreased as there are no user charges that previously made pupils to be sent away from school. Elimu Yetu (2004), confirms that teachers were of the view that FPE has positively impacted on the dropout rates. Unfortunately, there were no records indicating whether those who dropped out went to other schools. According to Wasanga, Ambia and Mwai (2010), at Primary school level, there is no systematic monitoring of who drops out and why. However, figures from UNESCO's 2010 Education for All Global Monitoring Report for Sub-Saharan Africa shows that while enrolment rates are rising, millions of children enter primary school only to dropout before completing a full primary cycle. Some 28 million pupils in Sub-Saharan Africa dropout every year. This contradicts the study's findings and it presupposes that as developing countries grapple with the challenges of rapidly expanding their education system, dropout rates are high and literacy and numeracy levels

remain low as stated by UNESCO (2010). This is further confirmed by KNEC (2014) which states that more than a third of pupils who joined standard one in 2007 did not complete their studies. While releasing KCPE results for 2014, Education Cabinet Secretary Professor Kaimenyi said that out of 1,312,206 pupils who were enrolled in standard one in 2007, only 880,486 sat for KCPE examinations that year.

The dropout rate in public primary schools is also very alarming. A clear indication of this is the difference between the number of pupils who joined primary school in Class One in 2003 and those who completed the eight-year cycle in 2010; from the more than 1.5 million who enrolled, only about 500,000 sat Kenya Certificate of Primary Education examination according to Ondego (2008). This begs the question, there other factors that affect school attendance apart from school fees.

Retention Rate

The study had 95% of the respondents giving comment on whether the retention rates in their schools had improved.

Table 6: Retention Rate

Response	Frequency	Percent
Very low	13	3.6
Low High	51	14.2
Very high	239	66.4
Total	41	11.4
	344	95.6

The findings in Table 6 reveal that 27.8% of the respondents saw retention rates as still low while 77.8% affirmed that the retention rate had generally increased. This indicates that FPE has made children complete primary education due to the absence of extra levies. This conflicts with the UNESCO (2010) findings, which showed that despite the increased enrolment arising out of FPE, several factors have made it difficult to maintain the figures. It is evident that the focus need not be on just enrolment but on maintaining the enrolled child in school. The Shanghai poverty conference which did a case study in Kenya, Lesotho, Malawi, and Uganda on Free Primary Education (FPE) also did not share this sentiment. One of its outcomes was that high dropout and poor completion rates need to be addressed, and improving quality throughout remains a major challenge.

Multishift

The respondents who gave their opinions on whether multishift would improve the pupil's participation in class were 95.3%.

Table 7: Multishift

Responses	Frequency	Percent
Not significant	72	20.0
Not at all Significant	134	37.2
Very significant	109	30.3
Total	28	7.8
	343	95.3

On Multishift, 57.2% seemed to see this approach as insignificant to improved participation in class as shown in Table 7. This system would allow for partial attendance of pupils in school based on morning and afternoon shifts. This would alleviate the immense overcrowding witnessed in schools with some learners being taught under trees. One of the challenges alluded to earlier, and currently being experienced in schools, is overcrowding of classrooms especially in the densely populated areas which have led to very high pupil teacher ratios in some cases going up to a PTR of 1:100. To ensure that quality is enhanced in such schools the Government has introduced double shift with a view to maximising utilisation of space (GOK, 2004). This approach to learning has had many negative connotations as being inferior to the conventional whole day learning. However, the question of who teaches the multi shift lessons or extra classes remains a serious challenge. (Ogola, 2010)

After School Tutoring Services

The respondents who commented on whether there were after school tutoring services in their schools were 95%.

Table 8: After School Tutoring Services

Responses	Frequency	Percent
Not evident at all	87	24.2
Not evident	132	36.7
Evident	103	28.6
Very evident	20	5.6
Total	342	95.0

The study also analysed the presence of after school tutoring and most of the respondents said that it was not evident in the schools anymore. There is a possibility that with the high enrolments the teachers are overworked and are not able to give extra lessons after school hours due to exhaustion. The essence of motivation is supposed to enhance commitment from the teachers an aspect that is diminishing due to the government policy over the issue. Majority prefer to teach where they can get an extra coin, a fact that is captured by a journal of Pan African studies and regardless of the explanation, the fact that the child's schoolteacher is very often the one providing the tutoring

creates a potential distortion in teacher incentives. Anecdotal evidence suggests that teachers sometimes refrain from teaching some of the curriculum during school to generate demand for their fee-generating tutoring classes. Some parents have even opted to take their children to private schools where there is extra tuition. This comes with a fee which is paid by the parents.

Construction of More Classrooms

All the 360 respondents gave their views on the building of more classrooms in them Schools after 2003 and 96.1% gave comment

Out of the 96.1% of the respondents, 44.7% disputed the construction of classes, while 51.1% confirmed the construction of classes after 2003 as shown in Table 4.12. The study shows that in some areas, classes were built while in other places classes were not built therefore we cannot attribute classroom infrastructure to FPE. These findings show that lack of classrooms is common place and align itself to SACMEQ III (2011) which revealed that Kenyan schools are lacking about a third of classrooms and the same number of sanitary units hence instead of head teachers concentrating on implementation of the school curriculum, they spend most of the time dealing

Table 9: Construction of More Classrooms

Responses	Frequency	Percent
strongly disagree	68	18.9
Disagree	93	25.8
Agree	143	39.7
strongly agree	41	11.4
Total	346	96.1

with congestion issues. Lack of adequate classrooms implies lack of adequate chairs and desks; this problem is compounded by tear and wear of the same

Maintenance of Facilities/Services

In the study 95.0 % responded to the question on whether facilities / services have been maintained in their schools

Table 10: Maintenance of Facilities/Services

Responses	Frequency	Percent
Very low	27	7.5
Low	78	21.7
High	203	56.4
Very High	34	9.4
Total	342	95.0

In Table 10, 29.2% of the respondents believed maintenance of the facilities is poor while 65.8% felt they have been well maintained. The government issued a directive that FPE does not require parents and communities to build new schools but instead encourage communities to improve, refurbish and use existing facilities (MOE, 2004). However, it is the responsibility of the government to improve existing school facilities, the building of new classrooms and new primary schools through the School Infrastructure Improvement Program (SIIP), which gives priority to schools serving communities in low rainfall areas and urban slums. This is however a task that is hard to accomplish considering the current budgetary allocation in Education. In an effort to maintain the existing facilities, there is an additional funding from the Constituency Development Fund (CDF), a kitty that is managed by the area Member of Parliament SACMEQ III (2011). However, it is notable that in Kenya today, approximately 50% of all the country's primary schools are housed in temporary and/or semi-permanent buildings; others are on split sites (Ngaroga, 1996). The declaration of free primary education witnessed the rise in student enrolment which in turn led to strain in the existing physical resources.

Transition Rate

On transition rate 95 % of the respondents gave comments as shown in Table 11.

Table 11: Transition Rate

Responses	Frequency	Percent
Average	5	1.4
Minimal	40	11.1
Greatly Very	223	61.9
greatly Total	74	20.6
	342	95.0

In Table 11, 12.5% of the respondents said that the transition rate has been minimal while 82% said it has greatly improved. This could be because the pupils stay in school and complete the primary cycle as there are no levies charged. They are also joined by those who had previously dropped out and those who are over age (Ogola, 2010). However, the 2012 Economic Survey shows that approximately 30 per cent of primary school pupils fail to transit to secondary schools because secondary schooling is yet to be actualized. Its implementation would mean automatic progression. This affects transition. About 250,000 Kenya Certificate of Primary Education (KCPE) exam candidates miss secondary school slots annually. Whereas the Kenya Vision 2030 is looking upon the education sector to deliver the necessary skills and build adequate human capital to achieve and sustain the country as a middle-

income country, such dismal transition rates are a major cause of concern in the education sector.

Gender Parity

On whether there has been gender parity on enrolment, 95.3% of the respondents gave comments

Table 12: Gender Parity

Responses	Frequency	Percent
Not attained at all	10	2.8
Minimal	55	15.3
Relative	227	63.1
Attained	50	13.9
Total	343	95.3

On enrolment according to gender, 18.1% of the respondents believed gender parity has not been attained but 77% concurred that enrolment by gender was at par as shown in Table 12. This could be since girls are no longer left at home to do the house chores as boys are given priority to go to school. Factors such as girl child empowerment and their education have contributed immensely to the acceptable gender parity witnessed today. This is however contrary to a study done by UNESCO (2010) in Sub-Saharan Africa which stated that around 54% of children out of school are girls. It further said that almost 12 million girls in Sub-Saharan Africa may never enroll. The United Nations has praised the move by the Kenyan Government to provide FPE as having the country “en-route” to reach the millennium development goals, enrolment and gender parity objectives at least in primary education (UNESCO, 2008). In remote rural areas like Lokichogio and Lodwar, the enrolment of girls had increased by nearly 40% (UNICEF, 2005).

Despite this praise by the UN, the country has not completely achieved gender parity. UNDP (2013), also concurs with these findings and says that the gross enrolment ratio for boys is still higher than that of girls, standing at 112.8% while for girls was 112.2% in 2009. Though there has been a marked general growth in enrolment rates and close gender parity especially with the introduction of FPE, the regional and gender disparities are evident especially in the ASAL districts, pockets of poverty and the urban slums. The assumption that the poor will always benefit from such interventions such as FPE in Kenya may not be true if the channels of that subsidy are the limited public schools and there is a ‘scramble’ for them. Most studies therefore believe gender parity has not been achieved as far as enrolment is concerned.

Conclusion

The enrolments were found to be generally on the rise. There is however gender parity in enrolment according to most respondents except for Nakuru North Sub-County where girls' enrolment is slightly below that of boys. In this study, students still got a chance to participate in class activities despite the increased enrolment. This is worth noting and contradicts earlier findings that there was little or no participation due to increased numbers. The study revealed that dropout rates have declined though most studies have a contrary opinion for example UNESCO's 2010 Education for All Global Monitoring Report for Sub-Saharan Africa shows that while enrolment rates are rising, millions of children enter primary school only to dropout before completing a full primary cycle. The study depicts a significant increase in the transition rate, but the findings appear to contradict the views of the 2012 Economic Survey which shows that approximately 30 per cent of primary school pupils fail to transit to secondary school. The above findings, therefore confirm an increased rate of enrolment and retention rate. The researcher recommended for a blending in terms of funding- both Government, Private Sector and households.

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Enhancing Comprehensive Ability through Subject Competitions: Model Development and Testing

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Abstract

An empirical study of innovation education model with a related survey of subject competitions in Chinese colleges and universities was carried out, and the results of which was presented in this paper. Under the paradigm of the agility theory, a dynamic and cross-level ‘enhancing comprehensive ability through subject competitions’ innovation education theoretical model was constructed and examined by using structural equation modeling. A total of 350 English majors and 50 social personnel participated in this study by using the method of multi-layer random sampling and cluster sampling. 382 valid questionnaires were used for the data analysis. Data collected were analyzed by internal consistency reliability analysis, exploratory factor analysis, and confirmatory factor analysis. The empirical results suggest that under the guidance of the agility theory, the six links have significant positive impact on the innovation education and ultimately enhance students’ comprehensive ability through subject competitions.

Keywords: Comprehensive ability, subject competitions, innovation education, agility, model.

1. Introduction

In order to meet present and future needs in a transformed world, maintain excellence and ensure equity, innovation in education is critically important and is imperative for success (Roberts et al., 2012). Innovation education is a kind of education mode that is based on the cultivation of innovation spirit and innovation ability. Due to its specificity, comprehensiveness, openness, democracy, and other characteristics, it has attracted great attention and created a worldwide wave of innovation education development and reform. In the practice of constructing a variety of innovation education models and cultivating innovative ability, undoubtedly, the subject competitions in colleges and universities are an effective carrier. The agility is the strategic capability of the enterprise to survive, develop, and maintain its

competitive advantage in the rapidly changing competition. It builds durable and efficient supply chains that power businesses and drive trade, thereby creating access to new opportunities (Chen et al., 2014). Agile organizations can be more flexible in their products, development strategy, etc. They can respond quickly to rapidly changing and high-quality requirements. In agile development era, it is required to understand what agile development means, how to create agile teams, and how agile teams collaborate, cooperate, and function in various situations, particularly in geographically and culturally diverse environments (Crowder et al., 2015). Therefore, constructing the innovation education model based on the agility theory provides a new perspective for the study of innovative education, which has important research significance. Under the paradigm of the agility theory, this paper constructs a dynamic ‘enhancing comprehensive ability through competitions’ innovation education mode. Therefore, it combines with the subject competitions in colleges and universities. In selecting English majors in colleges and universities as the sample, the empirical study on the theoretical model is carried out by using practical data. This is with the hope of promoting the development of innovation education in colleges and universities, and providing a useful reference for the establishment of competitive advantage of colleges and universities.

2. The Theoretical Model of Innovation Education

2.1 Theoretical Background

Education should promote the young to develop their talents, their intellect and capabilities to their fullest potential, regardless of any disadvantage in their background (Maclellan, 2016). Essentially, innovation is ‘the creation and implementation of new processes, products, services and methods of delivery, which result in significant improvements in the efficiency, effectiveness or quality of outcomes’ (Australian National Audit Office, 2009:1). There is no doubt that ‘innovation is important for education to equip the young to thrive, to fulfill aspirations for excellence and equity, and to provide students with opportunities to learn in ways that are consistent with learning sciences knowledge’ (Roberts et al., 2012: 21). As a response to traditional forms of instruction, innovation education is a systematic project, aiming at cultivating creative talents. Innovation education has been identified as a key contributor to enhancing the innovative behavior of individuals and organizations. Finding its antecedents in constructivism theory, such as the work of Dewey among others, innovation education lays stress on the cultivation of innovation spirit and ability, and the realization of comprehensive development of the educated. Based upon a successful international innovation management program, Herstatt et al. (2014) constructed a conceptual innovation education framework, which provides a

thematic appreciation of the multi-dimensional relationships between components. Besides theoretical researches, innovation education has made significant practical achievements in foreign countries. Thus, a series of successful innovative education models have been formed, such as MIT model, model of Tokyo University, Timberlake's model and Taylor's plural ability development model, which contribute a lot to the education now and in the future.

Originating from the agile manufacturing in the United States in the late 20th century, the concept of agility has become a new strategic thinking to guide the development of enterprises, enterprise services, and knowledge management (Dubey et al., 2015). It is the strategic capability of the enterprise to survive, develop, and maintain its competitive advantage in contemporary business environments. Later, the term is applied to a broad range, from the initial production areas to knowledge management, information systems, education and other fields. From different perspectives and levels, scholars at home and abroad have carried on the thorough study on agility and have gradually shifted the focus to the framework analysis and empirical research. Colleges and universities play an important role in the construction of national innovation system, shouldering the responsibility of cultivating innovative talents. The subject of competition in colleges and universities is an effective carrier for cultivating innovative talents. Yet, very little study exists on the combination of subject competition and the innovation education. This is particularly so in the higher education. Based on the agility theory, this paper deeply analyzes the process and mechanism of the construction of innovation education model, in order to enhance students' comprehensive ability through subject competitions.

2.2 The Theoretical Model

As an ability to facilitate rapid reaction and development, the agility plays a very important role in promoting the construction of 'enhancing comprehensive ability through subject competitions' innovation education model. Combined with subject competitions in colleges and universities, this study tries to construct the 'enhancing comprehensive ability through subject competitions' innovation education theoretical model from the perspective of the agility theory, in order to explain the basic characteristics and evolution mechanism of agility in promoting the construction of the model. As shown in Figure 1, the model is dynamic and cross-level which includes three levels (individual, team, and society) and six links (desire and needs, information gaining, resource integration, innovation practice, acting and reflecting, and institutionalizing). Starting from the link of individual's desire and needs and information gaining, it comes to the stage of the team's resource integration and innovation practice, then to the acting and reflecting, and institutionalizing

of the team and society. The accumulated feedback and information provides an effective source of knowledge and institutional guarantee for a new round of innovation education, realizing the dynamic and agile cycle of innovation education. In this model, the three levels interact through the agility, and the six links of different levels circulate, achieving recycle development and agile innovation of ‘enhancing comprehensive ability through subject competitions’ innovation education.

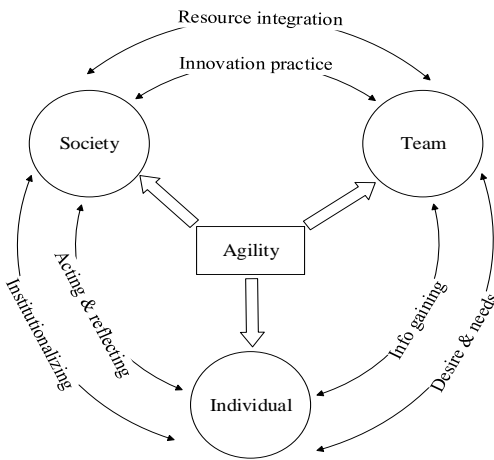


Figure 1. Theoretical model of innovation education

Based on the relationship between the above six links and the ‘enhancing comprehensive ability through subject competitions’ innovation education, this study proposes the following research hypothesis model (Figure 2) and six research hypotheses.

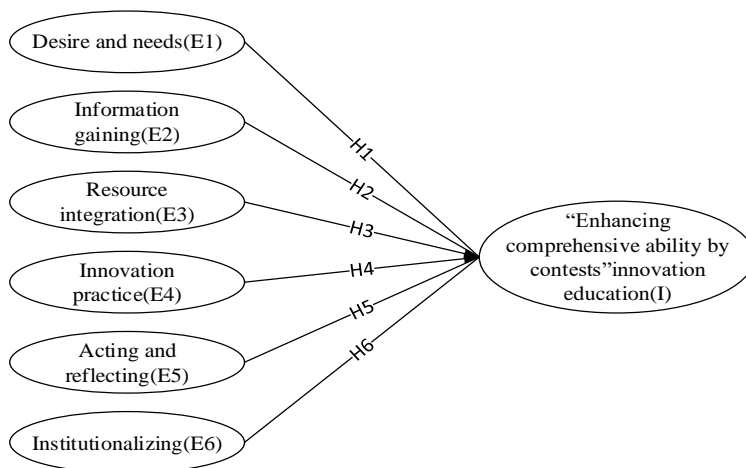


Figure 2. Research hypothesis model

H1: the desire and needs has significant positive impact on the ‘enhancing comprehensive ability through subject competitions’ innovation education.

H2: the information gaining has significant positive impact on the ‘enhancing comprehensive ability through subject competitions’ innovation education.

H3: the resource integration has significant positive impact on the ‘enhancing comprehensive ability through subject competitions’ innovation education.

H4: the innovation practice has significant positive impact on the ‘enhancing comprehensive ability through subject competitions’ innovation education.

H5: the acting and reflecting has significant positive impact on the ‘enhancing comprehensive ability through subject competitions’ innovation education.

H6: the institutionalizing has significant positive impact on the ‘enhancing comprehensive ability through subject competitions’ innovation education.

3. The Empirical Study on the Theoretical Model of Innovation Education

3.1 Sample Selection and Pre-survey

By using focus group, this study selects 20 teachers, students and social personnel to optimize the model elements, aiming to make the model more practical and reasonable. Therefore, the ‘enhancing comprehensive ability through subject competitions’ innovation education model scale (Table 1) is constructed, which consists of 6 primary elements and 12 secondary elements.

Table 1. The ‘enhancing comprehensive ability through subject competitions’ innovation education model scale

Primary element	Secondary element	Description of secondary element
Desire and needs	Desire needs	V1 : be willing to devote time and energy V2 : broaden horizons and improve skills V3: enhance employment competitiveness
Information gaining	Way content	V4 : learn practical experience V5 : get information about competitors V6 : collect content information

Resource integration	Reality network	V7 : entity resource integration V8 : learn and share V9 : interaction among team members V10 : network resource integration
Innovation practice	Group individual	V11 : communication among teams V12 : simulation practice V13 : targeted and personalized guidance V14 : comments of experts and the public
Acting and reflecting	Reflection feedback	V15 : team reflection V16 : personal introspection V17 : social feedback
Institutionalizing	Existing innovative	V18 : follow current standards V19 : learn from the advanced system V20 : perfection of relevant systems

Based on literature research and the interview information of the sample group, an innovation education questionnaire was designed, which composes of 20 elements. Before large-scale questionnaire survey, 50 questionnaires were randomly distributed to conduct a pre-survey in order to ensure the rationality and feasibility of the questionnaire. According to the results of the pre-survey, the Likert four-scale questionnaire consisting of 20 items was revised. The questionnaire has six dimensions: desire and needs, information gaining, resource integration, innovation practice, acting and reflecting, and institutionalizing. The dimension of the desire and needs has 3 items, the dimension of information gaining has 3 items, the dimension of resource integration has 4 items, the dimension of innovation practice has 4 items, the dimension of acting and reflecting has 3 items, and the dimension of institutionalizing has 3 items.

3.2 Data Collection

A network questionnaire survey and an on-site questionnaire survey were conducted among 350 English majors of some universities and 50 persons in Rizhao City. This, however, was done by using the method of multi-

layer random sampling and cluster sampling. The questionnaire survey was conducted from April to June in 2016, lasting for 3 months. The network questionnaire survey was conducted through professional survey platform, and English majors were investigated in the on-site questionnaire survey. 400 questionnaires were given out and 382 valid questionnaires were collected back, with the effective response rate of 90%.

3.3 Data Statistics and Analysis

3.3.1 Internal Consistency Reliability Analysis

Internal consistency is typically a measure based on the correlations between different items on the same test (Green et al., 2015). It measures whether several items that propose to measure the same general construct produce similar scores. Internal consistency is measured with Cronbach's alpha. As shown in Table 2, the overall reliability was 0.960, and Cronbach's values of each item were higher than 0.7. Therefore, this means the questionnaire had good reliability and validity.

Table 2. Internal consistency reliability analysis results

Items	Desire & needs	Information gaining	Resource integration	Innovation practice	Acting & reflecting	Institutionalizing	Overall
Cronbach' α	0.840	0.835	0.824	0.869	0.782	0.778	0.960

3.3.2 Exploratory Factor Analysis

'In order to decrease the dimension of variables effectively and uncover the underlying structure of a relatively large set of variables' (Cudeck, 2012: 270), exploratory factor analysis was used in this study. The number of variables in this study was 20, and 359 effective samples were obtained through the questionnaire, which met the premise condition of exploratory factor analysis. It shows that the collected sample data is suitable for exploratory factor analysis.

To examine the construct validity of the questionnaire, KMO and Bartlett sphericity test for 20 variables were conducted firstly. Results showed that KMO value was 0.837, the chi square value of Bartlett sphericity test was 6072.701, and the level of significance was less than 0.05. The result indicates that exploratory factor analysis can be conducted. Under the standard of eigenvalue >1 and factor loading value >0.4 , the principal component analysis of the 20 items in the questionnaire were conducted. By making varimax rotation, 6 factors were extracted, which could explain 67.578% of the total variance. Further analysis showed that the common degree of V1 in factor1 (desire and needs) and V7 in factor3 (resource integration) was less than 0.4; therefore, V1 and V7 were deleted. Further exploratory factor

analysis and varimax rotation of the left 18 variables showed that it was appropriate to extract 6 factors. The eigenvalue, variance contribution rate, and cumulative variance contribution rate of each factor are shown in Table 3.

Table 3. Exploratory factor analysis results

Component	Initial eigenvalue			Extraction sums of squared loadings			Rotation sums of squared loadings		
	Total	% of variance	cumulative%	Total	% of variance	cumulative%	Total	% of variance	cumulative%
1	1.992	7.826	42.516	1.992	7.826	42.516	2.943	32.467	32.467
2	1.771	7.013	43.255	1.771	7.013	43.255	2.510	29.537	34.156
3	1.464	6.099	48.253	1.464	6.099	48.253	2.205	23.412	41.798
4	1.321	5.478	53.721	1.321	5.478	53.721	2.073	20.375	53.241
5	1.215	5.022	58.778	1.215	5.022	58.778	1.964	19.117	61.746
6	1.124	4.685	67.578	1.124	4.685	67.578	1.873	18.451	67.578
7	.991	4.130	69.231						
8	.921	3.821	71.423						
9	.863	3.598	75.115						
10	.787	3.470	76.235						
11	.740	3.269	77.134						
12	.721	2.976	79.269						
13	.679	2.743	80.136						
14	.674	2.357	81.435						
15	.610	2.276	82.234						
16	.594	2.142	84.156						
17	.563	2.047	86.732						
18	.542	1.832	89.049						

Exploratory factor analysis showed that 6 factors can be concluded in the questionnaire which was designed according to the innovation education theoretical model. According to the content of the items of each factor, 6 factors were renamed in this study: ‘desire and needs’, ‘information gaining’, ‘resource integration’, ‘innovation practice’, ‘acting and reflecting’, and ‘institutionalizing’.

By exploratory factor analysis, ‘enhancing comprehensive ability through subject competitions’ innovation education theoretical model is improved further. There are 6 primary elements (desire and needs, information gaining, resource integration, innovation practice, acting and reflecting, and institutionalizing) and 18 secondary elements. The result is consistent with the hypothesis model basically.

3.3.3 Confirmatory Factor Analysis

In order to verify the relationships among the latent variables, the confirmatory factor analysis of sample data was conducted by using Amos 22 software. In addition, the theoretical model and research hypothesis model were tested by using the structural equation. If the constraints the researcher has imposed on the model are consistent with the sample data, then the results of statistical tests of model fit will indicate a good fit, and the model will be not rejected (Hoyle, 2012). Using CMIN/DF, NFI, GFI, CFI and RMSEA as the evaluation index, the structural equation model (Figure 3) and its fitting index data (Table 4) were obtained in the study. Thus, it can be concluded that ‘enhancing comprehensive ability through subject competitions’ innovation education theoretical model has good fitting degree. Furthermore, it has been proven that the hypothesized model is reasonable.

Table 4. The fitting index data of the structural equation model

Fitting index	CMIN/DF	NFI	CFI	GFI	RMSEA
Standard value	≤ 2.00	≥ 0.90	≥ 0.90	≥ 0.90	< 0.05
Measured value	1.95	0.921	0.910	0.920	0.047

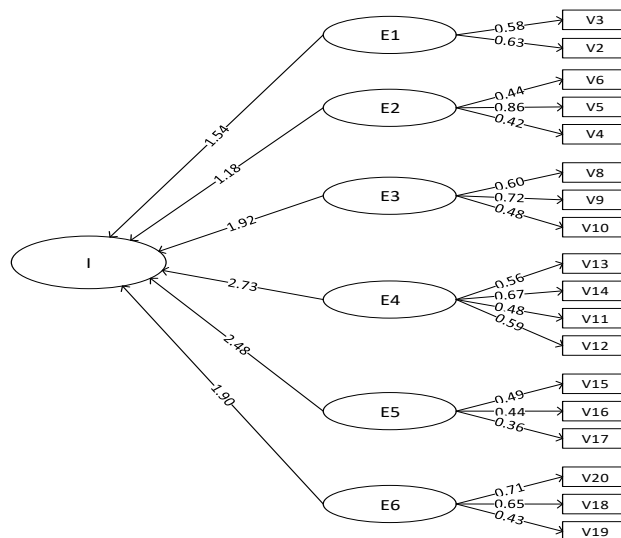


Figure 3. The structural equation model of innovation education

4. Findings and Discussion

As shown in Figure 3, the regression coefficient of E1 (desire and needs) to I (‘enhancing comprehensive ability through subject competitions’ innovation education) was 1.54, which arrived at significance level (< 0.001).

It indicated that E1 had a significantly positive effect on I, and the research hypothesis 1 was correct. E1 (desire and needs) consists of two items (V2 and V3). Therefore, this shows that strong personal attitude and intention is the first step in the process of agile learning and it has a positive influence on the innovation education. Desire is a sense of longing or hoping for a person, object, or outcome and is the fundamental motivation of all human action. When a person desires something, their sense of longing is excited by the enjoyment or the thought of the item, and they want to take actions to achieve their goal (Guzman et al., 2014). Subject competition in colleges and universities is an effective platform for cultivating innovative talents, providing the students with the opportunity to show their ability and creativity. In order to give full play to its positive role in promoting the growth of young talents, deepening the quality-oriented education and promoting social development, colleges and universities should fully mobilize students' enthusiasm to take part in the subject competitions.

E2 (information gaining) had a significantly positive effect on I ('enhancing comprehensive ability through subject competitions' innovation education). As shown in Figure 3, the regression coefficient of E2 to I was 1.18, which arrived at significance level (<0.001). It proved that the research hypothesis 2 was correct. E2 (information gaining) consists of three items (V4, V5, and V6). To get relevant information quickly under the guidance of the agility theory is very important for the construction of 'enhancing comprehensive ability through competition' innovation education model. Learning from other institutions and taking the initiative to obtain relevant information will help to promote the agility and feasibility of 'enhancing comprehensive ability through competition' innovation education. Aiming at information gaining and agile learning, it is an effective way to collect information about the subject competitions and competitors in time, and to understand the level and needs of the participants.

As shown in Figure 3, the regression coefficient of E3 (resource integration) to I ('enhancing comprehensive ability through subject competitions' innovation education) was 1.92, which arrived at significance level (<0.001). It indicated that E3 had a significantly positive effect on I, and the research hypothesis 3 was correct. E3 consists of three items (V8, V9, and V10). With the enhancement of the behaviors of different levels, such as information exchange, resource integration and interactive contact, the effectiveness of 'enhancing comprehensive ability through subject competitions' innovation education is improved accordingly. It creates a dynamic process of resource recycling. It also proves that the close relationship among and within the teams can bring great advantages to innovation. Strong ties promote the acquisition, absorption and construction of knowledge, and the evolution of cooperation in dynamic networks

(Melamed et al., 2016). Therefore, the rapid and effective integration of resources can promote the construction of innovation education model.

E4 (innovation practice) had a significantly positive effect on I ('enhancing comprehensive ability through subject competitions' innovation education). As shown in Figure 3, the regression coefficient of E4 to I was 2.73, which arrived at significance level (<0.001). It proved that the research hypothesis 4 was correct. E4 (innovation practice) consists of four items (V11, V12, V13, and V14). Putting theory into practice positively will effectively improve the effectiveness of the 'enhancing comprehensive ability through subject competitions' innovation education. Practice is the only criterion to test new knowledge and methods.

As shown in Figure 3, the regression coefficient of E5 (acting and reflecting) to I ('enhancing comprehensive ability through subject competitions' innovation education) was 2.48, which arrived at significance level (<0.001). It indicated that E5 had a significantly positive effect on I, and the research hypothesis 5 was correct. E5 consists of three items (V15, V16, and V17). Thus it can be concluded that constant acting and reflecting can put the original experience in constant process of being examined, modified, and strengthened. Constant acting and reflecting refines practical experience effectively and makes it a rational, open force.

E6 (institutionalizing) had a significantly positive effect on I ('enhancing comprehensive ability through subject competitions' innovation education). As shown in Figure 3, the regression coefficient of E6 to I was 1.90, which arrived at significance level (<0.001). It proved that the research hypothesis 6 was correct. E6 consists of three items (V18, V19, and V20). It indicates that fixed procedure and process as well as the system and norms are of vital importance to the construction of 'enhancing comprehensive ability through subject competitions' innovation education model. In the process of practice, the learning outcomes of the individual and team are integrated into the system guarantee through the process or norms. In the future innovation practice, the members will have rules to follow and search for useful information, learn useful experiences, and predict development trends quickly, thereby achieving the real dynamic cycle of innovation education.

5. Suggestions and Research Prospect

'Enhancing comprehensive ability through subject competitions' innovation education model contains three levels (individual, team, and society) and six links (desire and needs, information gaining, resource integration, innovation practice, acting and reflecting, and institutionalizing). The desire and needs refers to the individual's attitude and intention of participating in subject competitions. The information gaining refers to

information gaining methods and information contents. The resource integration refers to information exchange and interactive integration from different levels and different sources. The innovation practice refers to practice methods and contents of the individual, team, and society. The acting and reflecting refers to the fact that individuals and teams reflect in practice, and they change their behaviors with new ideas and knowledge. The institutionalizing refers to the fact that the team and the society integrate the practice results into the system guarantee to ensure the future innovation practice have rules to follow.

For ‘enhancing comprehensive ability through subject competitions’ innovation education model, the above six links have significantly positive relationships, forming a dynamic process of reciprocating cycle and collaborative development. Therefore, in the construction of agile innovation education, we should first pay attention to students’ needs. Personalized publicity and training should be provided according to the needs of students from different majors in order to improve the effectiveness of innovation education. Secondly, cooperation and exchanges should be strengthened, and mutual development be sought. Exchange and cooperation at different levels can effectively promote the effectiveness and social recognition of innovation education. Thirdly, the institutional construction of innovation education should be strengthened, and the existing practice results be institutionalized. Continuous testing and optimization in the future should be improved in order to ensure the agility and effectiveness of innovation education.

Based on the combination of theoretical analysis and empirical study, a new model of innovation education was constructed in this study, straightening up the development trend of ‘enhancing comprehensive ability through subject competitions’ innovation education. Although the model can provide theoretical and empirical basis for the follow-up study, there are still some deficiencies in this study owing to the limited data sources and complex research process. In the following research, the scope and level of sample selection should be expanded to enhance the universality of the ‘enhancing comprehensive ability through subject competitions’ innovation education model. In addition, the research results can be combined with the specific subject teaching to explore more practical basis for the model. It is also the content of further study to investigate the agility of different stages of innovation education by other research methods.

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Analysis of Graduate Level Principal Preparation and Teacher Preparation Candidates on a Christian Leadership Survey at an American Private Christian University

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Abstract

Universities are seeking ways to measure seemingly subjective experiences of faith, *objectively*. This study focuses on the measurement of student perceptions of attributes of their Christian leadership development in a university in the mid-eastern part of the United States. Pre-program and post-program survey responses were collected from students enrolled in educational leadership endorsement and teacher licensure programs from January 2010 through December 2016. Dependent sample t- test showed a fairly normal distribution with three extreme outliers in the difference scores. With alpha set at 0.05, seven of the nine reviewed categories from the Christian Leadership Survey yielded statistically significant results. These results are tempered by the generally low effect sizes as measured by Cohen's *d*. Recommendations, as a result of this study, are focused on the commitment to continuous improvement in program practices and requirements found in the accreditation standards.

Keywords: Christian Leadership Survey, Christian Worldview, Conceptual Framework.

Introduction

“A Christian college should be an education that cultivates the creative and active integration of faith and learning, of faith and culture. This is its unique task in higher education ... to retain a unifying Christian worldview” (Holmes, 1975, p. 6 - 7). As a center of Christian thought and action, Regent University's (RU) educational leadership and teacher preparation programs' goal is to blend faith and learning principles through integration of the School

of Education's (SOE) Conceptual Framework (Appendix 1) with the full academic curriculum. Four pillars are found in this framework where students seek knowledge and wisdom in order to serve and edify others in their respective professional learning communities. Servant leadership exemplifies the SOE Conceptual Framework and is a focus in school leadership and teacher preparation programs.

A true servant leader puts others ahead of his/her own agenda, possesses the confidence to serve, initiates service to others, is not position-conscious, and serves out of love. Servant leadership ministers to individual needs by setting the stage for developing caring leaders and teachers (Maxwell, 1999).

The Regent University School of Education (SOE) faculty created the Conceptual Framework in 2001 to capture the essence of its guiding philosophy and orientation. Four pillars were established to encourage its students to:

- Seek knowledge by formulating questions and answers to current educational issues and by formulating research-based solutions,
- Seek wisdom by applying acquired knowledge in a manner that demonstrates a God-given wisdom to create an environment in which justice, human dignity, and academic achievement are valued,
- Serve others by treating them with dignity, love, and respect as well as supporting and encouraging them, and
- Edify others by demonstrating awareness of and sensitivity to the individual needs of their students, colleagues, and community by growing in competence and character (Regent University, 2003, p. 1).
- The essence of the SOE's Christian mission is expressed in the center of its conceptual framework which is acknowledging the centrality of Jesus Christ in all things. All SOE programs contain elements of the conceptual framework and there is an expectation that faculty integrate faith and learning in all courses using this framework. There is a need to assess this integration's impact on student's Christian leadership development. It is the results from this assessment that this study is undertaken. This study provides an American focus on Christian principles and professional formation that may be of interest to the European university community.

Continuous Program Improvement

In education, the term **continuous improvement** refers to any school- or instructional-improvement process that unfolds progressively, that does not have a fixed or predetermined end point, and that is sustained over extended periods of time. The concept also encompasses the general belief that improvement is not something that starts and stops, but it's something that

requires an organizational or professional commitment to an ongoing process of learning, self-reflection, adaptation, and growth. For example, when a school is continuously improving, a variety of small, incremental changes are occurring daily and in ways that cumulatively, over time, affect multiple dimensions of a school or school system. (Great Schools Partnership, 2017, p. 1) Continuous improvement in the university is a relatively dynamic process, and efforts to improve teacher quality at the university level involve faculty analyzing data such as student scores on program assessments, e.g., Praxis II, and various institutionally created instruments. These instruments are used to capture a candidates' teaching and leadership proficiency during coursework and field experiences. Supporting data are typically administered, collected, and analyzed as students move through a university program. The data-driven decision-making that occurs at the program level for faculty is routinely documented for national accreditation purposes. Accrediting organizations demand a culture of evidence for program improvement (Council for the Accreditation of Educator Preparation Handbook, 2015). Program faculty analyze the Christian Leadership Survey data during the academic year to determine if there is a correlation between faculty instruction, program content, and student responses in the nine survey categories: Analytical/Problem Solving Skills, Communication, Christian Worldview, Seeking Wisdom Through Relationships, Discerning Call, Lifestyle Choices, Serving Others Through Christ-like Attributes, Serving Others in the Greater Community, and Edifying Others. Faculty routinely use the data that is disaggregated by each university program to make decisions on adjusting and strengthening curriculum and the integration of biblical principles. The improvements faculty undertake based on student and program data might include changes to course curriculum, field placements, and program logistics. Ultimately these improvements have one purpose, to develop a more effective teacher or administrator.

Statement of the Problem

Christian colleges and universities are pressed to be faithful to their religious mission being called to preserve and promulgate traditional theological values and practices. A gap in the literature exists for Christian universities and colleges in determining mission impact.

The gap exists in how Christian universities and colleges construct and develop Christian mission impact assessment instruments. No evidence was found in the literature that Christian universities and colleges construct such an assessment instrument based on their school or program conceptual framework. Additionally, Regent University has utilized a Christian Leadership Survey for ten years with very little analysis on program impact.

Definition of Terms Christian worldview.

According to Watson (2007), a biblical worldview uses scripture “to assist in developing a framework of conviction that can be applied to various settings. Scripture is to guide the conscious development of our thinking about life and practice” (p. 361).

Regent University Mission Statement.

Regent University Mission Statement is to train Christian leaders to change the world. As a center of Christian thought and action, RUSOE’s goal is to blend faith and learning principles through integration of the School of Education’s Conceptual Framework (Regent University, 2017).

Literature Review

Christian colleges and universities operate under a distinctive set of conditions within American higher education. “They are deeply embedded in and accountable to two worlds, each of which has a distinctive culture: higher education and the church. Both higher education and communities of faith have well-articulated values, expectations, and ways of operation, with each claiming its unique role in influencing administration and academics in Christian institutions of higher education” (Henck, 2011, p. 196). The challenge for Christian universities and colleges is to demonstrate fidelity in both arenas. In one arena, accrediting organizations have prescribed performance standards that universities and colleges must satisfy through periodic accreditation. In the other arena (and the basis for this study), Christian universities and colleges must hold true to their Christian Mission and student worldview impact which have their own performance standards.

Effectively capturing quantitative data in this latter arena can be challenging for Christian university faculty. Noting the absence in the literature of systematic processes or instrumentation used by Christian universities and colleges to capture the Christian Mission impact with fidelity, this study is designed to gather data on program graduates’ perceptions of their Christian formation while at Regent University. Operationally, analysis of the data will provide insight into use of the Christian Leadership Survey for program improvement and accreditation.

Christian Worldview

Christian universities are continually seeking more effective ways to measure graduate performance and outcomes while maintaining their Christ-centric Mission focus. Christian universities across America recognize the importance of students developing a steadfast biblical worldview during their college years, and faith integration in Christian academe is the chief topic among American Christian colleges and universities. Watson (2007) found

that the intention of Christian postsecondary education was to assist students in establishing a framework of beliefs that undergirded every facet of life. The worldviews of twenty-first century university students have been influenced by their fluctuating ideological and demographic backgrounds; today's college campuses represent a diverse population possessing a plethora of worldviews (Coll & Draves, 2008). Measuring worldview program impact of students should be common practice in Christian universities and colleges in order to gauge intuitional effectiveness.

In reviewing the literature and previous research on the topic of Christian worldview, much uncertainty surrounds research on the perceptions of Christian university graduates' worldview and on the instruments used that contain elements that are germane to measure spiritual growth or perception of Christian worldview (Baniszewski, 2016; Camp, 2009; Morales, 2013). The literature reported a concerted effort to better define the Christian world-view (Sire, 2004; Schultz & Swezey, 2013) including increased use and study of the *Three-Dimensional Worldview Survey-Form C (3DWS-Form C)*. The focus is its potential use in postsecondary Christian institutions (Morales, 2013). This particular instrument differs from other worldview instruments in that it purports to measure three components of a person's worldview: propositions, behaviors, and heart orientation. In a recent study, the survey was used on over 3600 first year Liberty University students (Morales, 2013). Overall however, the researchers found little commonality in the literature on Christian universities and colleges developing, implementing, and evaluating Christian Mission student-learning outcomes for program improvement and accreditation purposes. As Liu (2011) suggested, institutional differences may create "differential implications" for learning-outcome data (p.7).

Some universities and colleges collect data on what is called, "heart-orientation" of its graduates, which is the most recently added component to worldview literature (Schultz, 2013, p. 236). The researcher's did not find any Christian university explicitly linking Christian mission impact assessment instruments to their organizational conceptual framework.

Conceptual Framework

A conceptual framework is the system of concepts, assumptions, expectations, and beliefs that supports and informs an organization (Miles & Huberman, 1994; Robson, 2011). Miles and Huberman (1994) further defined a conceptual framework as a visual or written product, one that "explains, either graphically or in narrative form, the main things to be studied—the key factors, concepts, or variables—and the presumed relationships among them" (p. 18). As noted, Regent University's conceptual framework captures the essence of the guiding philosophy and orientation of all of the programs in the SOE. The faculty developed four pillars in this

framework to achieve the mission of the university and the school. The pillars are evident in all programs including the ones addressed in this study.

Summary

Christian universities are accountable to two worlds: the Church and higher education regulations. For the Church the accountability measure is an assessment of Christian Worldview. As used in this study, the Church represents the general American evangelical, orthodox, foundational understanding of Christianity illustrated by Regent University's Statement of Faith (Appendix B). This study is part of the SOE's effort to hold itself accountable in light of this statement.

Higher education in RUSOE school leadership and teacher preparation programs are accountable to both the state and the national accrediting agencies for program and accreditor standards. Effectively capturing quantitative data in both arenas is challenging. This study focuses on the measurement of student perceptions of attributes of their Christian leadership development in a university in the mid-eastern part of the United States.

Methodology

Research Question and Null Hypotheses

What is the self-perceived impact of six graduate level education programs on the acquisition of Christian principles and professional formation for each program's completer. The associated null hypotheses take the general form of: there is no statistically significant ($\alpha = 0.05$) difference between student pre-program and post-program scores on the Christian Leadership Survey (CLS) for nine reviewed categories.

Setting

Data was collected from students enrolled in educational leadership endorsement and teacher licensure programs from January 2010 through December 2016. The six educator preparation programs studied are heavily influenced and guided by state and national accreditation standards. Under national accreditation measures, each program undergoes a voluntary process for assessing and enhancing academic and educational quality. The process assures coursework and faculty quality and supports continuous improvement throughout the university. The programs: Elementary Education, Special Education, Reading, Career Switcher, Teaching English to Students of Other Languages (TESOL) and Educational Leadership all follow strict mandates set forth by the state. Each program awards a license or certificate to program completers in the area or discipline studied as noted in Table 1.

Table 1

Distinguishing Features of the Elementary Education, Special Education, Gifted Education, Reading Specialist, Career Switcher, TESOL Programs, and Educational Leadership

Program Name	Degree Status	Length	Results	Features
Elementary Education	Bachelor of Science (B.,S.) in Interdisciplinary Studies (IDS) or Master's in Education (M.Ed.)	B.S. in IDS: 120 credit hours, including school practicums and student teaching. M.Ed.: 39 credit hours; may be completed in 18 mos., including school practicums and internships; field experiences and student teaching.	Bachelor of Science in IDS and Initial Teacher's Licensure PreK-6. Master of Education degree and Elementary Education Initial Teacher's License PreK-6.	100 hrs. of field experiences/observations (Practicum) and 500 hrs. of internship experience
Special Education	Master's in Education (M.Ed.) or Professional Development	35-38 credit hours; may be completed in 18-24 mos.; one semester may be added for Reading Specialist Endorsement.	Master of Education degree and initial K-12 teacher licensure with endorsement in Sped Gen Curr. K12 and/or Reading Specialist.	310 hrs. of internship in each area of endorsement; practitioner-oriented.
Reading Specialist	Master's in Education (M.Ed.)	37 credit hours. May be completed in 18-24 months.	Master of Education degree and Reading Specialist endorsement.	This program features increased flexibility with an online delivery, while maintaining a very practical and engaging approach to learning.
Career Switcher	Non-degree	24 credit hours. May be completed in 16-24 mos.; 1 yr. mentored teaching required.	Recommendation to Virginia Department of Education for initial CS provisional licensure.	Provides mentor support for students in the classroom; includes 1 yr. mentored teaching during Level II experience; may add 14 credit hrs. to earn a Master's in Education.

TESOL (ESL Pre-K-12 Endorsement track)	Endorsement, but may be added to a Master's in Education (M.Ed.) program.	32 credit hours for master's degree; may be completed in 18 mos.; 15 credit hours for certificate only.	Master of Education degree and/or recommendation for ESL PreK-12 endorsement.	Pre-K-12 Endorsement track.
Educational Leadership	Master's in Educational Leadership	M.Ed.: 37 credit hours; may be completed in 18 mos. including internships	Master of Education in Educational Leadership	320 hrs. of internship experience

Population

The total number of educational leadership endorsement and teacher licensure program enrollees was 4435 during the timeframe studied and data are disaggregated by program and year (Table 2). The figure of 4435 represents the potential of 4435 program enrollees who could have taken the survey. The survey is delivered online to all students when they enter their respective program and a second time upon program completion. Table 3 displays the number of CLS per Survey Monkey Dataset, Survey Monkey being the delivery tool for the CLS.

Table 2

Total Number of students enrolled in the Elementary Education, Special Education, Reading, Career Switcher, TESOL, Educational Leadership Programs who had potential to take the survey (2010-2016)

Program	2010	2011	2012	2013	2014	2015	2016	Total
*Elementary	22	21	13	10	10	5	10	91
*Special Education	145	170	185	189	201	217	233	1340
*Reading Specialist	24	72	91	73	78	72	64	474
*Career Switcher	106	99	110	99	123	157	167	861
*TESOL	74	70	57	67	72	95	103	537
*Educational Leadership	132	157	171	160	160	175	176	1131
Total	503	589	627	598	644	721	753	4435

Table 3

Number of Christian Leadership Surveys per Survey Monkey Dataset Analyzed from 01/01/2010-12/4/2016

Dataset Name	Number of surveys analyzed per dataset
A	40
B	46
C	298
D	511
E	1336
F	1851
Total	4082

Instrument

The CLS is an integral part of the ongoing process of enhancing and improving student outcomes and in preparing them to transform lives in their careers and communities. This program level assessment helps students evaluate and reflect on their level of readiness for Christian leadership. Through a review of the literature, review of other instruments such as Benson & Erickson's Faith Maturity Scale (1993), the faculty's experiences, expert panel, and personal beliefs on faith, 45 questions (Table 4) were developed around each of the 5 outcomes clustered in themes for each section: Seeking Knowledge through Scholarly Inquiry, Seeking Wisdom, Serving Others, Edifying Others, and Faculty and Staff Integration of Values.

The fifth section on Faculty and Staff Integration was added in later years to confirm if faculty and staff were perceived to demonstrate the values espoused to their graduates. Because the fifth theme of Faculty and Staff was not stable across the timeframe studied by the researchers, it was not included in this research project. The method of scaling the questionnaire was a five point fully anchored Likert – type scale {1 (Never True of me) to 5 (Always True of me)}. Among the 5 major domains/themes each contained subcategories which defined or reflected an operational definition for application. For example, seeking knowledge contained 9 questions that addressed subcategories of Analytical Problem Solving Skills and Communication (Table 4).

Table 4*Number of Questions per Category Analyzed*

Category	Number of questions per category
Analytical/Problem Solving Skills	5
Communication	3
Christian Worldview	2
Seeking Wisdom Through Relationships	3
Discerning Call	5
Lifestyle Choices	5
Serving Others Through Christ-like Attributes	8
Serving Others in the Greater Community	5
Edifying Others	9
Total	45

Some of the actual program features being assessed by the Christian Leadership Survey include faith and learning assignments in each course, BlackBoard forums, paper assignments, residency where applicable, personal communication with faculty, availability of chapel services on campus or on the internet, ambience of the Regent University website including Bible verses of the day and commentary, prayer requests on BlackBoard, choice of textbooks, reading assignments in courses, and student services with faith based activities and resources. This list is not all inclusive as there are numerous other program features and characteristics that are elements of student life at the university. Upon completion of this study additional steps will be recommended to develop students in the area of Christian principles and professional formation.

The face validity of the CLS is strong since the items were directly generated from the SOE conceptual framework. The framework is described in every course syllabus and the faculty discusses how the framework applies to the respective courses. According to Hopkins and Hanes (2010), validity measures for the CLS include content validity, criterion-related validity, and construct validity. Content validity mirrors face validity noting the items from the survey are derived from the conceptual framework, support for it in the research literature, developed by a single professor with 12 years' experience in the SOE, and the entire faculty reviewed and had opportunity to comment on it. Criterion-related validity, concurrent, from a large scale pilot test and although anonymity maintained, it can still compare for trends via school specific cohorts and predictive in that it can be compared to the RU SOE Alumni Survey which elicits information about activities and awards and cohorts. Construct validity results from four factors (factor analysis): (1) Kaiser-Meyer-Olkin measure of Sampling Adequacy is .96 and Bartlett's Test of sphericity yields an approximate chi-square of 18880.09, $p < .001$; (2) Chi-Square Goodness-of-fit Test produces a value of 4056.15, $p < .001$ and percent of Total Variance Explained is 49.54, thus roughly half of the variance in the

data is explained by four factors – researchers would like for this to be higher but accept the 49.54; (3) the Scree Plot indicates 4 Factors, 11 factors have Eigenvalues > 1, Kaiser-Guttman Rule dictates inclusion of these, an ‘Eigenvalue is the proportion of variance explained by each factor’, interpretability is a major issue with 11 factors, and 11 factors explain 66.01% of the variance”; (4) the structure matrix indicates that many items loaded on Factor1 across 3 of the pillar scales, the Seeking Knowledge pillar items loaded on Factor 4 with good separation, no other pillar scale provided such sound loadings, Factor 2 loaded negatively for all items, 14 of which had predominant loadings here, and Factor loadings are the correlation coefficients between variables (items) and factors. (slides 17-28).

The CLS was administered to all students in their first program course (Blackboard Introduction) and again in their last program course or capstone course. The administration of the survey was accomplished through a Survey Monkey link in the students’ Blackboard Introduction course, through course syllabi postings, and routine faculty course announcements alerting students to complete the survey. In recent years the CLS has been a leading topic among RUSOE faculty as accreditation metrics were analyzed. Faculty have methodically cataloged each program course offering the survey to students in order to increase student awareness of the survey and increase return rates. Although some variability exists among the means of the various administrations of the survey, this variability is small and due primarily to a ceiling effect. The internal reliability of the CLS, measured by coefficient alpha is .94 for 2009-2013 surveys and .95 for the 2013-2014 administrations. These findings are a respectable indicator of internal consistency for the administrations of the instrument.

A sample of CLS questions are presented in Figure 1 to provide context to the instrument used for data collection. Five sample questions are noted with the likert-type ratings as they appear in Survey Monkey.

Analysis of the Christian Leadership Survey

During the spring and summer of 2006 and the fall of 2007, faculty set out to probe hypothesis based on the CLS to determine the impact RUSOE had in fulfilling its mission “to

Figure 1 <i>Sample of Christian Leadership Survey Questions</i>			
<u>Analytical /Problem Solving Skills</u>			
I think critically about	Not true of me	Rarely true of me	Sometimes true of me
Usually true of me	Always true of me		
important questions in my field of study.			
<u>Christian</u>			<u>Worldview</u>
I understand the	Not true of me	Rarely true of me	Sometimes true of me
Usually true of me	Always true of me		

meaning of the term “biblical worldview” and its application to life.			
<u>Seeking</u>	<u>Wisdom</u>	<u>through</u>	<u>Relationship</u>
I accept persons whose Usually true of me	Not true of me Always true of me	Rarely true of me	Sometimes true of me
opinions differ from mine.			
<u>Discerning</u>			<u>Call</u>
I am aware of my God- Usually true of me	Not true of me Always true of me	Rarely true of me	Sometimes true of me
given talents and abilities.			
<u>Serving</u>	<u>Others</u>	<u>through</u>	<u>Christ-like</u> <u>Attributes</u>
I speak truth in love. Usually true of me	Not true of me Always true of me	Rarely true of me	Sometimes true of me

provide exemplary education, from a biblical perspective...” Eleven hypotheses based on the means of the pre-enrollment survey versus the means of the post-program survey categories from a small sample population were analyzed by the faculty. Faculty sought to determine if there was a statistically significance difference between the pre and post averages. Faculty concluded that there was evidence to imply a difference in the scores among students. The finding that supported “program training and attributes” probably had an impact in the area of Christian Worldview given the differences in the scores from the pre-enrollment survey and the post-program survey provided confidence to faculty that they are providing a biblically based, Christian education in line with the school’s conceptual framework. All other hypotheses were not statistically significant. At the time, this was disappointing considering the programs were intended to impact those dimensions as well. Based on data, faculty and respondent feedback, the CLS underwent several modifications over the last ten years. Faculty in the School of Education routinely review annual CLS data by faculty and department for accreditation purposes. Feedback is solicited from faculty and documented during faculty department meetings. Although the survey has undergone modifications over ten years, nine categories noted in Table 6 and related categorical questions and the Likert Scales remained constant during the period of

Table 6*Stable Christian Leadership Survey Categories**Name of Category**Analytical/Problem Solving Skills**Communication**Christian Worldview**Seeking Wisdom Through Relationships**Discerning Call**Lifestyle Choices**Serving Others Through Christ-like Attributes**Serving Others in the Greater Community**Edifying Others*

serve others and view leading or teaching as an edifying process for their staff and/or their students.

Procedures

All students in teacher licensure and educational leadership endorsement programs are surveyed in their initial Blackboard course and again in the last program course they take. Data is stored with and reported by the RUSOE Data Manager for review by the educational leadership endorsement and teacher licensure faculty.

Data Mining

The researchers took steps to appropriately document data cleaning and preparation processes so the data can be used accurately by colleagues and other researchers in the future. Researchers utilized the strengths of Microsoft Excel to capture, sort, and clean the data.

The documentation of the data cleaning process provided identifiable and usable data derived from the workflow described.

Several survey questions were slightly modified by faculty for clarification purposes over six years and the survey was used across all programs and available to all enrollees of teacher licensure and educational leadership programs. The university utilized the Survey Monkey database for all surveys in this study and the survey instrument was administered online to students during their first and last program courses. Six Survey Monkey datasets were analyzed dating from January 1, 2010 through December 4, 2016. The number of surveys analyzed per Survey Monkey dataset within the selected date range is displayed in Table 3. Respondent dates of survey completion varied depending on the semester enrolled and semester of completion in their respective programs. The six Survey Monkey datasets were not assigned to particular programs during the administration of the survey. It was determined by the researchers that assignment of the Survey Monkey dataset survey web link provided to each program enrollee was

unsystematically performed by university personnel. The six Survey Monkey datasets contain respondents from every teacher licensure and educational leadership program. Occasionally, student survey data was identified to belong to more than one dataset (A-G) among the six datasets. Again, this was most likely due to the unsystematic process of assigning survey web links.

The researchers chose the date range of January 2010 through December 2016 to coincide with the ongoing School of Education accreditation data analysis. The CLS Likert scale remained constant over the five year period studied. Several survey questions underwent minor clarifications or were removed during that timeframe by faculty. For example, in the category Analytical/Problem Solving, question one was slightly modified from: *I formulate questions and answers that demonstrate critical thinking and reflection* to *I think critically about important questions in my field of study*. Question three in the same category was slightly modified from: *I read scholarly articles to refine my professional knowledge and skills* to *I read scholarly journals and articles to refine my professional knowledge and skills*.

Two questions in the category Seeking Wisdom through Relationship were removed: *I express my point of view and actively listened to others' point of view* and *I empathize with others even though their beliefs and culture may be different from my own*. These modifications were suggested and completed by faculty during the School of Education Accreditation and Accountability monthly meetings in order to improve survey face and construct validity.

The researcher's goal was to analyze pre-program and post-program survey data for each program completer which would produce usable data to help program faculty make program improvement decisions. Data sets were cleaned and prepared using Microsoft Excel. The researchers utilized a phased approach that produced analysis-ready data without destroying the original data sets (Weiss & Townsend, 2005).

The researchers began with a total of 4082 student surveys in six Survey Monkey datasets dating from January 1, 2010 through December 4, 2016. The intent was to preserve the meaningful pre-program and post-program data for each program completer while removing elements of the datasets that would affect the quality of the results. With a total number of program enrollees of 4435 and the potential of 8870 responses, this yielded the researchers with an initial return rate of 46%. The intention was to identify two surveys per student; one pre-program survey and one post-program survey. Single respondent and incomplete survey data (incomplete survey defined as less than half of the questions completed) were removed which refined the total to 3102 student surveys. Single respondent surveys might be due to the nature of a volunteer survey with some students only completing either the pre-program or post-program CLS during their program. The data

was further refined using survey completion date and corresponding respondent name or student ID number to find and remove duplicate entries of preprogram and/or post-program surveys from the same respondent. This duplicate data was widespread throughout all Survey Monkey datasets and the phenomenon appeared to be respondent submission errors caused by repeatedly submitting completed survey data during the same session, thus sometimes producing two identical pre-program and/or two identical post-program surveys for a respondent. These actions produced a total respondent corresponding pre-program and post-program survey number to 1068. The researchers reported 534 students enrolled in a Teacher Licensure or School Leadership Program with a pre-program score and a post-program score for the CLS from January 1, 2010 through December 4, 2016. This provided the researchers with a final return rate of 12% for the two completed surveys per student identified in the study, see Table 7.

Table 7

Participation

Surveys	Reason for Survey Removal	Number of Students
8870 Potential for Return	-	4435 enrolled in SOE Programs
4082 Returned	Non-participation	-
3102 after first exclusion	Single response/incomplete	-
1068 after second exclusion	Duplicate/multiple entries	534 complete pre-post entries

The researchers calculated the pre-program and post-program gain scores for each question within the nine identified categories. Random hand calculations of survey mean scores and gain scores were conducted by the researchers to verify data processing accuracy.

Limitations

The first limitation is that the responders self-report their perceptions, and survey data should be viewed in conjunction with other assessment results to determine the program's effectiveness in developing caring and skilled teachers. Another limitation is the survey return rate. Although students are provided the CLS during their first and last program courses and consistently reminded to participate in the survey by staff and faculty, the survey is voluntary.

Results

Table 8 summarizes the results for analyses using the dependent samples *t*-test to determine whether a statistically significant difference exists for each of the nine categories selected for review. The assumption of

normality for the difference scores was tested using the Kolmogorov-Smirnov test with Lilliefors correction, and the overall test result was statistically significant, $D(534) = 0.05$, $p < .01$. A histogram showed a fairly normal distribution, but three extreme outliers were present in the difference scores. With larger sample sizes, $N > 30$, the dependent samples t -test tends to be robust to mild to moderate violations of normality (Rovai, Baker, & Ponton, 2014).

For the null hypotheses that there is no statistically significant difference between the pre-program survey and the post-program survey, most of the t -tests were statistically significant with alpha set at .05, and there is sufficient evidence to reject seven of the nine null hypotheses as indicated in Table 8.

The effect size using Cohen's d is quite low for seven of the categories. By convention, values of 0.2, 0.5, and 0.8 represent low, medium, and high ratings (Rovai, Baker, & Ponton, 2014). Thus Analytical Problem Solving Skills (0.52) has a medium effect size, and Communication (0.31) has a slightly better than low effect size.

In determining statistical conclusion validity, both statistical and practical significance

Table 8

Descriptive Statistics and t-test Results for Nine Categories of the Christian Leadership Survey

Category	Pre-program		Post-program		n	95% CI for Mean Difference	Effect size	t	Sig. (2-tailed)
	M	SD	M	SD					
Analytical/Problem Solving Skills	3.90	.56	4.18	.53	534	.32, .23	.52	11.90*	.00
Communication	4.19	.57	4.35	.53	534	.11, .20	.31	7.07*	.00
Christian Worldview	4.38	.59	4.44	.52	529	.10, .09	.10	2.33*	.05
Seeking Wisdom	4.37	.57	4.42	.51	531	.06, .03	.22	5.13*	.00
Discerning Call	4.24	.53	4.32	.53	530	.03, .12	.15	3.50*	.00
Life-style Choices	4.24	.46	4.25	.40	530	.03, .04	.00	0.31	.74
Serving Others	4.37	.45	4.43	.47	527	.02, .09	.14	3.11*	.00

Serving	4.	.56	4.2	.5	52	.03, .12	.1	3.25	.00
Community	16		4	5	7		4	*	
Edify	4.	.61	4.1	.6	52	.074, .076	.0	.02	.98
	17	2	7	13	0		0		

* $p < .05$

provide some essential elements that require evaluation (Johnson & Christensen, 2014; see Shadish, Cook, & Campbell, 2002, for additional elements for consideration). Only the

Analytical Problem Solving Skills category reaches statistical conclusion validity for this study.

Note that because of pairwise deletion selection, the degrees of freedom, reflecting the n size, vary slightly across the categories.

Findings

Discussion

With alpha set at 0.05, seven of the nine reviewed categories from the Christian Leadership Survey yielded statistically significant results. These results are tempered by the generally low effect sizes as measured by Cohen's d . The Analytical/Problem Solving Skills category stands out as the only subscale that reaches statistical conclusion validity (Johnson & Christensen, 2017; $p < 0.01$ and $d = 0.52$). It also stands out as the only survey category that does not incorporate an element of overt Christian leadership which is the target of this research.

In addition, Analytical/Problem Solving Skills is the only category to have a pre-program mean value of less than 4.00 (3.90 versus a range of 4.16 – 4.38). Likewise, this category had the second lowest post-program mean score (4.18 versus 4.17 for Edify), and it produced the largest gain in mean value (0.28 versus 0.16 for Communication); this seems reasonable in light of the previously mentioned ceiling effect.

Another potential influence on the results stems from the clearly Christian character and orientation of Regent University. For the most part, Regent attracts and enrolls professed Christian students who should initially score well on most of the pre-program CLS categories. These students may have little room to grow on such measures as perhaps demonstrated by the post-program survey means and the mean gain values. The Life Styles Choices category offers a good example in this regard. It is not surprising that students with a strong belief in Jesus and His teachings would also have already made certain lifestyle choices in line with these beliefs. Those choices would be supported by the Regent University environment and campus experiences such that mean scores would change very little from pre-program to post-program assessments (in this case a mean gain of 0.01).

Explaining the lack of any mean gain (0.00) for the Edify category is challenging. There appears to be little to distinguish this category from five other “Christian” ones (excluding Life Style Choices, Analytical/Problem Solving Skills, and Communication). Communication lies on the border of a clear Christian emphasis, and this may help explain its second largest effect size of $d = 0.31$ and second largest mean gain = 0.16.

The researchers note that the lack of randomization and a low response rate make the CLS reflect a convenience sample. For this reason, utilization of inferential statistics including p -values is open to question. However, effect sizes stand on their own for any particular dataset, and we have emphasized their importance by reporting statistical conclusion validity.

The researchers also acknowledge the threat posed by nine hypothesis tests on the same dataset leading to the need for compensation via the deployment of a familywise alpha to control for a Type I error (Green & Salkind, 2017). In this first cut at exploration of the CLS, the researchers felt that it was reasonable to treat each of the nine categories as a separate survey, and various control methods (Bonferroni, Holm’s Sequential Bonferroni, etc.) were not applied.

Travelling with the nature of a convenience sample, threats to external validity in terms of population, settings, and time are present. The researchers cannot extrapolate to our School of Education student population for the included time period; the researchers can only make conclusions for the limited dataset that was analyzed.

Recommendations for Christian Leadership Survey Practices

Recommendations, as a result of this study, are focused on the commitment to continuous improvement in program practices and requirements found in the accreditation standards. Therefore, recommendations specifically address CLS outcomes and its administration. First, RUSOE programs should continue to administer the CLS and do so with more precise and accurate evaluation of the results. CLS data provides a measure of Christian leadership and the integration of faith and learning through the program’s course of study. Faith and learning is no longer the term used by the university as the university change the focus to Biblical Principles. All references in the CLS and those related to the administration and evaluation of the CLS must utilize this new term. Faculty should continue to highlight Biblical Principles in course learning goals, syllabi, discussion board posts, and other instructional methods.

Additional recommendations are as follows. CLS data should be disaggregated by program, as well as, graduate and undergraduate. Holding more accountability to the various levels of involvement into CLS outcomes could have a dramatic impact on participation. There needs to be specific

attention to improving the response rate by providing professional development to the faculty, especially adjunct faculty, to educate them on the purposes and administration procedures for the CLS. The faculty should re-evaluate the courses where the CLS is administered for optimal participation. Another recommendation and/or strategy for increased participation is to design a video presentation on the CLS for program chairs and other viable individuals who have a voice in its administration. The video could be imbedded in online course modules for all students and faculty to access.

Specific recommendations address program faculty. Program faculty must review the CLS in their committee sessions for any revisions or clarifications. Focus groups of faculty and students should be organized to address specific CLS categories and their use in the CLS for a more in depth review. Faculty should conduct CLS exit interviews with program respondents. Whether face-to-face or online, faculty probing student interactions before, during, and after the course could shed light on the respondent's survey answers. Faculty should hold focus/debriefing sessions before a course begins, during and after the course ends to discuss the premise of Christian Worldview and Biblical Principles. Faculty could better understand student perceptions of Christian Worldview that might not be evident in survey data. Increase opportunities should be provided for students to lead in the discussion and formation of Christian Worldview. SOE faculty who have expertise in Christian leadership formation and/or teaching of Biblical Principles should be called upon to in-service all program faculty regarding their expertise. Finally, upon review and inclusion of all recommendations, a report should be completed and reviewed in detail by all program faculty as evidence of the work to improve the CLS. The report should be submitted to the SOE dean and filed for evidence in accreditation requirements.

Any contemplated adjustments must be brought to the Accreditation and Accountability Team (AAT) for further discussion and approval. It is the AAT that directs the faculty's effort for state program approval and accreditation. The AAT houses the data storage/retrieval system and makes recommendations to the all faculty and or SOE dean for any items that align with program approval and/or national accreditation. Much data mining and analysis has been conducted on the CLS, the researchers encourage its continued use with the recommendations made. To conclude, this study should be presentation to the field for best practices in program approval and accreditation. The researchers felt that submitting this study to a European journal would provide an international perspective for reflection and additional research opportunities.

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Appendix A

Regent University School of Education Conceptual Framework

Regent University, (2017), p. 1. Retrieved from

<https://www.regent.edu/soe/about/>

OUR PURPOSE defined and operationalized:

Acknowledging the centrality of Christ in all things, the Regent University School of Education commits itself to providing learning opportunities which promote the **skills, dispositions and understandings** which will enable its graduates to seek knowledge and wisdom in order to serve and edify others. To this end, Regent School of Education graduates will manifest the following characteristics:

- SEEKING KNOWLEDGE:** The School of Education graduate will...
 - formulate questions and answers that demonstrate critical thinking and reflection,
 - identify research-based solutions for current issues in the field,
 - design and develop frameworks and applications that are relationship sensitive, and solution oriented, and
 - demonstrate the scholarly characteristics of a life-long learner.
- SEEKING WISDOM:** The School of Education graduate will...
 - demonstrate an understanding of a biblical world view and its application to learning and life, and
 - apply knowledge in a manner which demonstrates a God-given wisdom to create a world in which social justice and human dignity are valued.
- SERVING OTHERS:** The School of Education graduate will serve others in a Christ like manner by...
 - speaking the truth in love,
 - treating others with dignity and respect,
 - supporting and encouraging others, and
 - displaying beatitudinal qualities.
- EDIFYING OTHERS:** The School of Education graduate will...

- inspire the learner to seek knowledge, orient the learner toward a lifelong search for wisdom, and support him/her in that pursuit,
- enable and encourage the learner to grow in character, and to seek God's call and purpose for his/her life,
- demonstrate awareness of and sensitivity to the individual needs of their students, colleagues and community, and will strive to meet those needs in love and service, and exemplify a life of faithful service which will encourage others to do likewise.

Appendix B

Regent University Student Handbook. (effective September 5, 2017)

Regent University. (2017), p. 9. Retrieved from

<https://www.regent.edu/admin/stusrv/docs/StudentHandbook.pdf>

2.4. Statement of Faith

2.4.1. Regent University is a Christ-centered institution. The Board of Trustees, along with the faculty, staff and students of the University, are committed to an evangelical interpretation and application of the Christian faith. The campus community is closely identified with the present-day renewal movement, which emphasizes the gifts, fruit, and ministries of the Holy Spirit. All employees are expected to understand and adhere to the following articles of belief:

2.4.1.1. That the Holy Bible is the inspired, infallible, and authoritative source of Christian doctrine and precept.

2.4.1.2. That there is one God, eternally existent in three persons: Father, Son, and Holy Spirit.

2.4.1.3. That man was created in the image of God but, as a result of sin, is lost and powerless to save himself.

2.4.1.4. That the only hope for man is to believe on the Lord Jesus Christ, the virgin-born son of God, who died to take upon Himself the punishment for the sin of mankind, and who rose from the dead so that by receiving Him as Savior and Lord, man is redeemed by His blood.

2.4.1.5. That Jesus Christ will personally return to earth in power and glory.

2.4.1.6. That the Holy Spirit indwells those who receive Christ for the purpose of enabling them to live righteous and holy lives.

2.4.1.7. That the Church is the Body of Christ and is composed of all those who through belief in Christ have been spiritually regenerated by the indwelling Holy Spirit. The mission of the Church is worldwide evangelization and the nurturing and discipling of Christians.

(Board of Trustees, Resolution #3, September 25, 1977.)