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Student Teachers' Perceptions of Theory and Practice Integration through Action Research

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Abstract. The purpose of the study is to gain insight into pre-service teachers' perceptions of integrating theory and practice by means of action research. Motivation for the study is the still unresolved theory-practice problem in teacher education. There is still little known in the research area of teacher education about how student teachers link theoretical knowledge and practical situations. The question of how the integration of several elements of the knowledge base of pre-service teachers can be realized is essential for this. A second reason for this study, related to this problem, is the rising interest in action research, which, due to its nature, helps student teachers use university theories for reflection on practical activities, thus contributing to the perception of the theory and practice integration process. The study is qualitative in nature and serves to uncover the lived experience of the 5 participants of the study (referendars[1] in the initial stage of their 18-months preparation program at teacher seminars and practicum settings across North Rhine-Westphalia, Germany) in the process of theory and practice integration through action research.

Keywords: theory and practice; teacher education; action research

Introduction

Research on the relationship between theory and practice in teacher education over the last decades has focused on the questions of how student teachers can integrate theory and practice and what the relationship between the two components should be or which of the two has to be the point of departure when designing the learning environment of a teacher education program (Blömeke, 2002; Cheng, Tang & Cheng, 2012; Dirks & Hansmann, 2002; Korthagen, 2010b).

[1] In Germany, referendar refers to (a) a trainee solicitor/attorney undertaking an articled clerkship as part of his/her professional training or (b) a trainee teacher during the practical period of teacher training. For trainee teachers this period lasts between 18 and 24 months depending on the state. During this time, Referendars are employed by and paid for by the state as applicants to the "middle" or "upper service" as government employees (Beamte), depending on which type of school they are training at. A teacher's traineeship consists of academic courses as well as hands-on teaching. At the end of the traineeship, trainee teachers take their Second State Examination to qualify for government employment as teachers.

Recent developments in the area of German teacher education led to an approach of integrating subject matter, pedagogical content matter and school practice (Beckmann, Brandt & Wagner, 2004). However, such an approach does not in itself lead automatically to student teachers' integration of theory and practice. In fact, the central question here is which training method will prevent a gap arising between theory and practice. Another related question, focusing on the development of student teachers, is how integrating several elements of a teacher education program can be realized and how this integration can be stimulated. As yet, little is known how student teachers link theoretical knowledge and practical situations, both vital components of learning to teach.

In this respect, action research is an attractive option for teacher researchers, school administrative staff, and other stakeholders in the teaching and learning environment to consider (Mills, 2011). Action research is generally defined as a form of educational research wherein a professional, actively involved in practice, engages in systematic, intentional inquiry into some aspect of that practice for the purpose of understanding and improvement (McNiff, 2013). The inquiry process involves data gathering, reflection on the action as it is presented in the data, generating evidence through the data, and making claims to knowledge based on conclusions drawn from validated evidence (McNiff, 2013). This sequence of actions, when applied to teacher education, bridges the gap between theory and practice (Johnson, 2012). For instance, the theoretical components underpinning action research practice are used to help practitioners understand and observe what is happening in a classroom setting. At the same time, and with the interests of best practice in mind, these collected data "are used to understand or inform theories and research related to best practice" (Johnson, 2012, p. 20). In a similar vein to the enhancement of the professional disposition of teachers, action research encourages teachers to become continuous learners within their classrooms and schools (Mills, 2011). Because of the professional, reflective stance required by practitioners engaged in the action research sequence, teachers are further encouraged to "examine the dynamics of their classrooms, ponder the actions and interactions of students, validate and challenge existing practices, and take risks in the process" (Mills, 2011, p. 46). Therefore, providing teachers with the necessary skills, knowledge, and focus to engage in meaningful inquiry about their professional practice may have a positive outcome on the integration of theory and practice.

Action research initiatives are widely used within teacher education programs in Australia and in the United States. In Germany, on the other hand, the concept is not so extensively introduced. The biggest concern of German teacher educators is the introduction of action research to the second phase of teacher education (referendariat) (Warneke, 2007) as there is a considerable disparity between theory and practice in this phase (Schubarth, 2007). Mayr (2006) suggests that the theory and practice integration is hardly achieved in referendariat representing its immense drawback. In the proposed study we attempt to find out whether the situation improves if student teachers are introduced to action research and engage in meaningful inquiry about their professional practice.

Theoretical background

Theory in Teacher Education

The relevance of research on the concept of theory in teacher education is twofold. First, pre-service teachers' use of theory as a part of the "linking process" between theory and practice, particularly in the way that theory supports observing and analyzing practice, can therefore lead to improving future teachers' practice. Theories can provide an instrument for teachers to recognize more quickly and adequately all kinds of aspects of the teaching-learning process. Teachers who can handle such an instrument are able to see more in the same situation and therefore can think, speak and act more effectively (Cheng, Tang & Cheng, 2010; Korthagen, 2010a). Second, establishing a knowledge base that underlies teachers' practice is a condition for improving the status of teaching as a profession (Mtika & Gates, 2011; Terhart, 2001).

Theoretical knowledge is a significant part of the professional knowledge base of teachers and provides the possibility to reflect educational situations (Dirks & Hansmann, 2002; Hagevik, Aydeniz, & Rowell, 2012). Thus, a prominent function of theory is providing an orientation base for reflection on practice. The learning environment of pre-service teachers needs theoretical supply and furthermore, the guidance of an expert in order to level up the student teachers' practical reasoning.

Practice in Teacher Education

Practice is a (learning) environment in which a profession is practiced (Southgate, Reynolds & Howley, 2013). A professional worker in that environment has been trained to act professionally, that is to say to act adequately on the (practical) knowledge base. A teacher can also be considered as someone who practices a profession (Terhart, 2001). Practice has many representations, which can be based on a number of views. In German teacher education, referendariat, an important representation of practice, is a teaching and learning place for prospective teachers. There are several functions of referendariat within teacher education in Germany, for example, the function of a training area for learning to teach or the function of the practice school as a laboratory to review and improve student teachers' instruction skills.

The Relationship between Theory and Practice in Teacher Education

It was always unclear for a teacher education program to define a theoretical dimension of teaching practice. The simplest approach was: you will learn theory during lectures and will then apply it in practice. It was implied that theory would help generate hypothetical solutions to practitioner problems, thus "applied in practice" (Drever & Cope, 1999). However, according to Abel & Faust (2010), student teachers often indicated that knowledge acquired at a teacher education program did not enable them to handle the uncertainty, the complexity and the instability of actual practice situations.

On the one hand, one can state that the training philosophy slogan "learning theory at academy and applying theory in practice" is outdated. On the other hand, there is still no clear solution to the problem of theory and practice integration in a teacher education program (Makrinus, 2013; Vogel, 2011). However, there are several strategies that can contribute to that integration, such as strong involvement from school and university staff and well designed infield experiences, reflective practice and inquiry approach, development of professional knowledge base, establishment of professional development schools. In the context of the discussion about relating practical and propositional knowledge, there is a rising interest in action research as a possible strategy to integrate theory and practice (Hagevik, Aydeniz & Rowell, 2012; Hendricks, 2006; Hermes, 1997; Sales, Traver & García, 2011; Warneke, 2007). We assume that action research can start a process in which student teachers link theory and practice in a meaningful way.

"Linking theory and practice" hereby can be defined as an adequate use of theoretical knowledge when reflecting on practical situations, putting and reaching teaching/learning objectives, analyzing practical experience, drawing conclusions and putting new objectives.

Action Research as a Way to Strengthen the Connection between Theory and Practice in Teacher Education

According to McNiff, Lomax & Whitehead (1997) "... action research is a powerful method of bridging the gap between theory and practice of education; for here teachers are encouraged to develop their own personal theories of education from their own classroom practice" (p. 1).

Contemporary theories state that action research is a way to promote a cyclical process of improvement that includes describing a problem, seeking knowledge from previous investigators, collecting data, devising and implementing a strategy for change, evaluating the results and planning for another cycle of improvement (Authors, 2009). Action research is seen as "a series of steps in which the action researcher reflects, acts, and evaluates" (Hendricks, 2006, p. 9). Thus, action research provides the need to get substantial theoretical base to reflect and evaluate practical experiences and stimulate their integration.

Johnson states that action research is "a type of inquiry that is preplanned, organized, and can be shared with others" (Johnson, 2003, p. 1). Action research is more than a mere concern over the technical problems of teaching, but provides the teacher with the necessary tools to investigate their perspectives on curriculum and moral concerns. This approach to action research moves away from the positivist and empirical approach to one that is more interpretive and critical (Capobianco & Feldman, 2010).

In Germany the concept of action research is known as "Hand lungs for schung" or "Aktions for schung" and is closely related to the name of Wolfgang Klafki. He stated that "action research should not be considered as an alternative to traditional empirical research, but if it comes to supporting educational

innovations that can provide improvement in one's teaching, action research can prove to be an appropriate approach with a great future" (Klafki, 1974, p. 271). Hermes (2001) defines action research as "… a combination of methods, that help teachers to reflect on themselves and their own teaching, make respective changes, analyze and evaluate themselves in relation to the expected educational aims" (p. 9). According to Altrichter (1989), "action research offers teachers assistance for further development of their knowledge and skills, allows them to enhance their professionalism and increase their social status" (p. 4).

As we can see, there is, on the one hand, a range of positive statements on the possibility of action research to prove as a way of theory-practice integration in teacher education, and, on the other hand, there are no substantial empirical investigations in Germany on action research, especially in terms of how it helps student teachers perceive that integration. Thus, we will provide an empirical justification from the view of participants of the study on action research as a way to strengthen the connection between theory and practice in teacher education.

Method

According to the literature analysis, it was revealed that there are very few studies emphasizing the views and experiences of pre-service teachers, to bring out their understanding of theory-practice integration process by means of action research. Thus, the research was designed to shed light on this problem and answer the **research question** *"How do the pre-service teachers perceive the theory and practice integration through action research?"*

The case study that this paper reports was conducted at teacher seminars and practicum settings of pre-service teachers across North Rhine-Westphalia, Germany during the second phase of teacher education (referendariat). In the study we took into account lived experience that is rooted in meanings, interpretations and activities of individuals.

Participant Selection

Purposeful selection of participants is a key decision in qualitative research (Creswell, 1998). Initial contact with the participants was made by e-mail. 14 student teachers undergoing their practical training (referendariat) agreed to participate; however when contacted later to arrange a suitable time for interview, only 5 participated. Reasons provided for not continuing onto interview included family and work commitments and a lack of time. The main characteristics of the 5 pre-service teachers are outlined in the following table:

Table 1: Participants of the Study

Pre-service teachers	Gender	Age	Educational background	Practicum Setting
P1	Female	28	1-st State Exam for gymnasium[2] and comprehensive secondary school (English/History)	Bielefeld
P2	Female	27	1-st State Exam for gymnasium and comprehensive secondary school (German/Philosophy)	Duisburg
P3	Female	26	1-st State Exam for gymnasium and comprehensive secondary school (German/English)	Bonn
P4	Male	25	1-st State Exam for gymnasium and comprehensive secondary school (History/Philosophy)	Cologne
P5	Female	27	1-st State Exam for gymnasium and comprehensive secondary school (Geography/French)	Essen

Data Collection and data sources

Data collection was conducted over a period of the first six months of referendariat (11.2013-04.2014) to enable the researcher to collect data from the five pre-service teachers in the process of their practical training, analyze and write the narrative. The data for this study was gathered mainly through in-depth interviews; some ideas relevant for the study and revealing the participants' perceptions of theory-practice integration through action research were also taken from pedagogical diaries of the participants, their self-observation notes, and pupils' and colleagues' evaluation surveys during the training.

Interviews

Interviews were the main source of data collection for the study and were conducted by phone due to the broad geographical spread of participants (Fenwick, 2011). Notes taken during interviews identified participants by code (e.g. P1) and included both verbatim and paraphrased recordings of their responses. The interviews provide the explanations and interpretations through the voices of the specific interviewees who can provide important insights into this particular situation. Essentially, in-depth interviewing provides the researcher with an understanding of other people's experiences, and the meaning they make of those experiences (Seidman, 1998).

[2] The gymnasium, in the German education system, is a type of secondary school with a strong emphasis on academic learning, comparable with the British grammar school system or with prep schools in the United States.

The interviews were qualitative in nature and were taken on a conversational aspect where the pre-service teacher and the researcher participate in a conversation that covers open-ended questions. Here, we asked key questions for facts as well as the opinions of the participants, and insights into certain occurrences (Yin, 2009). The open-ended questions were included for the participants to demonstrate their unique way of looking at the world and their definitions of the situations (Silverman, 1993). The interview questions focused on: a. the teachers' personal and academic background, the reasons for choosing the particular practicum place and their attitude towards the acquired at the university theoretical knowledge, gathered practical experience and the ability to use both when performing professional duties; b. the student teachers' understandings of action research; c. the student teachers' perceptions of theory and practice integration through action research.

Follow up questions were used for clarification and to capture the unfolding of the perspectives of the participants' as they view the phenomenon of interest, and not how the researcher views it (Rossman & Rallis, 1998). The technique of three separate interviews was adopted for the study (Seidman, 1998). The first interview established the context of the participants' experience. The second interview allowed the participants to reconstruct the details of their experience within the context, and the third interview encouraged the participants to reflect on the meaning of their experiences (Seidman, 1998).

Pedagogical diaries, self-observation notes and evaluation surveys

At the beginning of the referendariat the pre-service teachers were required to write a pedagogical diary as part of their practical training process. It was also suggested to take self-observation notes during the lesson. Evaluation surveys by pupils and colleagues were conducted on a weekly basis. The materials were scanned by the participants and sent to the researcher by e-mail. At the end of each month the materials were analyzed and formed a part of the data, which were used to extend the views of the pre-service teachers on the process of theory and practice integration by means of action research.

Data Analysis

Data analysis is a process of bringing order, structure, and meaning to the data. Each phase of analysis entails the reduction of data collected into manageable chunks so that meaning and insight is brought to the words and actions of the participants in the study (Rossman & Rallis, 1998).

Data analysis process comprised of two phases. The first phase of data analysis was aimed at filing the interviews and organizing the narratives of each student teacher. The interviews and transcriptions for each participant were numbered. The interviews were then read and re-read to become familiar with the participants views. We read the interview transcripts and wrote the ideas that the participant was conveying. According to the main goal of this study, we searched for patterns in the data noting any traits of pre-service teachers' personal experiences of integrating theory and practice by means of action research. The

second phase of data analysis served the purpose of coding collected data from pedagogical diaries, self-observation notes and evaluation surveys to match the patterns we planned to identify in the interviews. The participant's written materials were categorically analyzed, a process which involved reading through the data to assign codes to significant words, phrases and ideas. We then compared and contrasted our individual codes in order to develop broad categories and then identify a number of themes in and between the categories (Coffey & Atkinson, 1996). Also, we looked for similarities between the themes generated from the two sets of qualitative data and then again scanned the whole data-set to ensure that we had effectively identified commonalities between themes and relationships among these themes (Coffey & Atkinson, 1996).

It was anticipated that the emergent themes would answer the research question and illustrate the process through which the pre-service teachers experience the theory and practice integration.

Results and discussion

The results and findings of this study reflect participants' perceptions of how they perceived and interpreted the integration of theory and practice through action research during referendariat. Responses to open questions during the interviews provided insight into participants' beliefs and attitudes about their theoretical knowledge, their practicum experiences to date and their perceptions about action research as a way to connect them. Findings generated through data analysis can be categorized into two themes. First, participants in this study largely valued both the theoretical and practical components during referendariat, which stands in contrast to the commonly identified tendency of the student teacher to favor practice over theory. Second, participants overwhelmingly supported action research as a means of bridging the gap between, on the one hand, the university and the school and, on the other hand, theory and practice.

Previous studies have shown that student teachers often privilege the practical side of their program over theoretical knowledge (Allen, 2009; Flagmeyer & Hoppe-Graff, 2006; Oelkers, 1999; Schubarth, Speck & Seidel, 2011), with some students advocating a return to an apprenticeship model of preparation (Allen, 2009; Schubarth et al., 2012; Hascher, 2012). While there was some evidence in this study of a student preference for practice, this was not to the exclusion of theory.

"It's really important to have both – my feelings about that haven't changed. You need to have a conceptual basis and then put it into place, and referendariat is a great way to do this. School setting is a great place to find out if your conceptual understanding fit with the way you actually teach" (P3).

Furthermore, two participants spoke out against wholly practice-based training, as in the apprenticeship model:

"I'm a great believer in linking theory and practice. It's important to have a conceptual and theoretical framework to work around. It doesn't always work but it's important to

understand the conceptual understanding – I don't think this would happen in an apprenticeship model" (P2, P5).

"The two are circular – you learn the theory and put it into practice and then refer back to the theory with evidence from practice and make improvements" (P4).

P5 mentioned that it was very important to gain a substantial theoretical basis at the university and *"… apply it to practice as we wanted to analyze and understand it"* (P5). P1 said that *"it is important to learn first and get a general idea of how to use action research and reflection strategies and then try them out in your own teaching"* (P1).

Linking carefully constructed practicum experiences with on-campus courses has been highlighted as one of the most powerful and effective ways of supporting student teacher learning (Darling-Hammond, 2006). In a national study of teacher education in the USA, Darling-Hammond (2006) singed out action research as one of the most influential way to make explicit links between theory and practice. Some follow up German studies highlighted the same idea (Wildt, 2011; Warneke, 2007). Across the entire set of qualitative data, participants also referred to the benefit of action research during referendariat as a means of bridging theoretical knowledge and field experience. When asked whether they were able to make more linkages with the action research compared to their previous practicum experience, 4 participants responded that they were able to make more linkages. When analyzing all response comments made by student teachers, we found that the overwhelming majority of comments concerned linkages:

"I saw and experienced most everything we learned. Action research helps us to relate what we are learning directly to the classroom. Being engaged in action research really helped in establishing a link between what is learned and how I practice it" (P5).

"I'm a great believer in linking theory and practice. It's important to have a conceptual and theoretical framework to work around. Action research makes it happen" (P5).

"Acton research is therefore a link the theory and practical experience, the bridge that connects theory to practice" (P3).

"The most important thing about action research is the ability to think and to rethink your teaching, to reflect, to draw connections with the theory you learned at the university, to create a network with colleague-teachers, to discuss teaching problems with them and to find a solution strategy" (P4).

P4 points out practical relevance as an essential feature of action research: *"Everything I've learned up to this point was theory and action research was theory in practice or theory in use. I became a real teacher by means of action research. Theory or practice only does not make you a professional pedagogue, a combination of both – does"* (P4).

Given these data, we were able to conclude that action research provided teacher candidates a context in which they were able to make substantial linkages between courses and practicum.

Another feature of action research mentioned by all of the participants is the ability to research and evaluate professional actions. The best way of gaining the research experience during practice is, according to P2, is the *"… combination of three elements, which comprise of attending lessons of the more experienced teachers, your own lesson-attempts with video and audio recordings and, finally, their analysis"* (P2). Such a strategy *"… transforms my perspective from a student to a researcher"* (P2). Thus, P2 implies that due to action research she can actively use theoretical knowledge in her teaching practice.

Action research allows student teachers to gain research and evaluation skills for enhancing studies: *"I wrote the diary of many different events and that was a real reflection throughout the practice. I dealt with contemporary educational theories trying to explain and find solution to the pupils' problems and that helped me pass the final in educational theory"* (P3).

Acquiring research skills when dealing with action research methods enabled P3 to *"… gain a new perspective on my own teaching and enhanced my research skills"* (P3). According to P3, this resulted in a feeling of having the so-called "teaching tools" that made her feel "confident and creative" about her teaching.

P2 sees action research as a *"… compulsory component of any teaching practice through which you can gain research abilities. If you use action research in your practice it is not like you are reading a book about some theoretical issue, it is the process of using one in your own practice"* (P2).

As we can see, the participants mention the importance of research skills for evaluation and reflection of practical activities. The theoretical basis and knowledge of research methods come here at hand as *"… if you are unaware of theoretical issues and research methods you will surely face the difficulty of using ones in practice"* (P5).

Thus, having the theoretical basis, participants feel more comfortable in reflecting practical activities and refer to some existing theories when looking for a specific solution to a particular problem.

Practicability of action research was also extensively mentioned by all of the participants during the interviews. The feature of practical relevance makes action research for the participants an effective training process, the lack of which they perceived during their studies at the university. In particular, the cycle of action and reflection, when teaching and learning processes are analyzed, makes it clear that action research is always based on the real-life experiences in the classroom.

P4 emphasizes the importance of practical experience for the process of learning as the acquisition of theoretical knowledge is not sufficient for professional development in a teacher training program. P1 considers the practice, not the

theory, the primary source of action research: *"It is the practice from where you draw conclusions and strategies for improvement."* However, the practical relevance of the approach does not limit P1 to the use of theory but inspires to combine practical skills with theoretical knowledge in a meaningful way.

The interview statements from three participants (P2, P3, and P5) imply that action research helps to reinforce learning in practical training: *"I have found it to be very intense. And yes, I have to say that my expectations to integrate theory and practice were more than fulfilled"* (P3).

This intensification of learning is mainly due to the comprehensive analysis of participants' teaching role, which is always seen in the context of action research as an interplay of action, reflection on action and development of problem-solving strategies or guidelines for further action: *"… this semester was very short and I think if this internship would not have been embedded into the framework of action research, the study process would have never run so intense"* (P5).

While the literature is largely critical of current models of (German) teacher preparation (Abel & Faust, 2010; Valencia et al., 2009; Zeichner, 2010), the emphasis lies in calling on the profession to improve current programming content and delivery arrangements (Darling-Hammond, 2010; Grossman, Hammerness, & McDonald, 2009; Kiper, 2003; Korthagen, Loughran & Russell, 2006; Lüders, 2010) rather than in returning to practice-based learning. The student teacher voice emerging from this study would seem to support this call. Indeed, there is evidence that action research during referendariat allows student teachers establish visible links between theory and practice. These comments are indicative:

"*You can't just learn from a classroom. Neither can you acquire necessary practical skills while studying theory at the Uni"* (P2).

"You need to do the readings to get subject matter knowledge and research methods knowledge and then you should go to a classroom and apply it. Of course, you can't become a perfect teacher overnight. But this is what action research is for. It allows you to evaluate your teaching, analyze it and single out the points to be improved. Then you should again go to a classroom and make a new cycle. Constant process of improvement is what really helps you become a perfect teacher" (P1).

Thus, action research, according to the student teacher reflections provided in this study, allows students to find themselves impelled in their ability to integrate theory into practice, to feel a clear demarcation between coursework and referendariat.

Summary and conclusion

The aim of the study reported in this paper is to respond to the central research question, "How do the pre-service teachers perceive the theory and practice integration through action research?" The research question, results and findings were aimed at contributing to an understanding of how student teachers

perceived and interpreted the integration of theory and practice through action research during the first six months of referendariat.

Two key findings emerged from the analysis of the qualitative data. First, students in this study value both the potential to enact theory and the opportunity to be involved in practice during their practicum experience being appointed as referendars. This finding can be contrasted with those of many other studies where students have been shown to favor practice over theory (Allen, 2009).

Second, according to participant responses, the optimum practicum environment in which students believe they can enact theory is one in which there are possibilities to reflect and evaluate their practical experience. Of particular importance is the research cycle which allows referendars, on the basis of the theoretical and research skills, to draw conclusions from personal practical experience and outline further professional improvement.

Thus, students strongly advocate embedding action research in referendariat and question why this is not included in current practicum arrangements. Unlike many other strategies of teacher training during referendariat, action research intensifies the pre-service teachers' professional development and allows forming the necessary professional competence for further successful performing of professional duties.

These findings point to the fact that embedding action research in a practicum setting would ensure that the student experience of integrating theory and practice is enhanced.

The limitations of the present study include the following. First, data were collected with one cohort of student teachers (for gymnasium and comprehensive secondary school). Second, the sampling comprised participants from only one of the 16 German states (North Rhine-Westphalia). Third, data collection was conducted over a period of the first six months of referendariat, whereas there were 12 more months to complete and which could also be beneficial for the participants in terms of theory-practice integration. Thereby, everything mentioned limits potential generalization of the findings.

Accordingly, more research on the same theme is needed in order to validate and generalize the findings from the presented study. More studies with broader samples and context in terms of participants' number, time span, and the place of experimenting may be seen as the most demanding research avenues. The findings of such studies when conducted are expected to overcome the limitations of the presented study and accordingly to further validate the presented findings.

References

Abel, J., & Faust, G. (Eds.). (2010). *Wirkt Lehrerbildung? Antworten aus der empirischen Forschung*. Waxmann Verlag.

Allen, J. M. (2009). Valuing practice over theory: How beginning teachers re-orient their practice in the transition from the university to the workplace. *Teaching and Teacher Education, 25*, 647–654.

Altrichter, H. (1989). Lehrer als Forscher. In: Altrichter, H., Wilhelmer, H., Sorger, H., & Morocutti, I. *Schule gestalten: Lehrer als Forscher. Fallstudien aus dem Projekt „Forschendes Lernen in der Lehrerausbildung"*. S. 3-15. Klagenfurt: Hermagoras.

Authors (2009). *Action research to strengthen middle grades interns' reflective practitioners' skills: a case in point at a large state university*. In: Paper presented at the 61st annual meeting of American association of colleges for teacher education, Chicago, IL.

Beckmann, U., Brandt, H. & Wagner, H. (Hrsg.) (2004). *Ein neues Bild vom Lehrerberuf? Pädagogische Professionalität nach PISA*. Weinheim: Beltz

Blömeke, S. (2002). *Universität und Lehrerausbildung*. Bad Heilbrunn: Klinkhardt.

Capobianco, B. M., & Feldman, A. (2010). Repositioning teacher action research in science teacher education. *Journal of Science Teacher Education, 21*, 909 - 915.

Cheng, M. H. M., Tang, S. Y. F., & Cheng, A. Y. N. (2010). Closing the gap between conceptions and practices of teaching: implications for teacher education programmes. *Journal of Education for Teaching, 36*(1), 91-104.

Cheng, M. M. H., Tang, S. Y. F., & Cheng, A. Y. N. (2012). Practicalising theoretical knowledge in student teachers' professional learning in initial teacher education. *Teaching and Teacher Education, 28*, 781-790.

Coffey, A., & Atkinson, P. (1996). *Making sense of qualitative data: Complementary research strategies*. Thousand Oaks, CA: Sage.

Creswell, J. (1998). *Qualitative Inquiry and Research Design: Choosing among the five traditions*. Thousand Oaks, CA: Sage Publications, Inc.

Darling-Hammond, L. (2006). *Powerful teacher education: Lessons from exemplary programs*. San Francisco, CA: Jossey-Bass.

Darling-Hammond, L. (2010). Teacher education and the American future. *Journal of Teacher Education, 61*, 35–47.

Dirks, U., Hansmann, W. (Hrsg.) (2002). *Forschendes Lernen in der Lehrerbildung. Auf dem Weg zu einer professionellen Unterrichts- und Schulentwicklung*. Bad Heilbrunn: Klinkhardt.

Drever, E., & Cope, P. (1999). Students' use of theory in an initial teacher education programme. *Journal of Education for Teaching, 25 (2)*, 97-109.

Fenwick, A. (2011). The first three years: Experiences of early career teachers. *Teachers and Teaching: Theory and Practice, 17*, 325–343.

Flagmeyer, D. & Hoppe-Graff, S. (2006). Zu wenig Praxis. zu viel Theorie (Wissenschaft)? Ausgewählte Ergebnisse einer Befragung von Lehramtsstudierenden vor und nach den Schulpraktischen Studien. In: M. Rotermund (Hrsg.). *Schulpraktische Studien – Evaluationsergebnisse und neue Wege der Lehrerbildung*. S. 65–86. Leipzig: Univ.-Verlag.

Grossman, P., Hammerness, K., & McDonald, M. (2009). Redefining teaching, re-imagining teacher education. *Teachers and Teaching: Theory and Practice, 15*, 273–289.

Hagevik, R., Aydeniz, M., & Rowell, C. G. (2012). Using action research in middle level teacher education to evaluate and deepen reflective practice. *Teaching and Teacher Education, 28 (5)*, 675–684.

Hascher, T. (2012). Lernfeld Praktikum – Evidenzbasierte Entwicklungen in der Lehrer/innenbildung. *Zeitschrift für Bildungsforschung, 2*, 109-129.

Hendricks, C. (2006). *Improving schools through action research: A comprehensive guide for educators*. Boston, MA: Pearson Education, Inc.

Hermes, L. (1997). Action Research und Lehrerausbildung. In: *Fremdsprachen und Hochschule*, 49, 5-17.

Hermes, L. (2001). Qualitätsentwicklung und Qualitätssicherung von Unterricht in der Sekundarstufe I Englisch. *Materialien zu dem Themenbereich: Action Research – Lehrkräfte erforschen ihren Unterricht. Erprobungsfassung*. Nordrhein-Westfalen: Landesinstitut für Schule und Weiterbildung.

Johnson, A. P. (2003). *What every teacher should know about action research (3rd ed.)*. Boston, MA: Pearson Education, Inc.

Johnson, A. P. (2012). *A short guide to action research* (4th ed.). New Jersey: Pearson Education.

Kiper, H. (2003). Welche Inhalte sollen das Studium in der Lehrerbildung bestimmen? *Beiträge zur Lehrerinnen- und Lehrerbildung, 21 (3)*, 342-356.

Klafki, W. (1974). Handlungsforschung. In: Wulf, Ch., (Hrsg.) (1984). *Wörterbuch der Erziehung*. 6. Auflage. München: Piper., S. 267-272.

Korthagen, F. A. J. (2010a). Situated learning theory and the pedagogy of teacher education: towards an integrative view of teacher behavior and teacher learning. Teaching and Teacher Education, 26(1), 98-106.

Korthagen, F. A. J. (2010b). The relationship between theory and practice in teacher education. In P. Peterson, E. Baker, & B. McGaw (Eds.), International encyclopedia of education (pp. 669-675). England: Elsevier.

Korthagen, F. A. J., Loughran, J. J., & Russell, T. (2006). Developing fundamental principles for teacher education programs and practices. *Teaching and Teacher Education, 22*, 1020–1041.

Lüders, M. (2010) Methodentraining in der Lehrerbildung und Lehrerfortbildung. Grundriss eines Programms für "effektives Unterrichten". In: F. H. Müller (Hrsg.), *Lehrerinnen und Lehrer lernen. Konzepte und Befunde zur Lehrerfortbildung.* (S. 345-357). Münster: Waxmann.

Makrinus, L. (2013) *Der Wunsch nach mehr Praxis: Lehramtsanwärter im Spannungsfeld von Theorie und Praxis; qualitative Einblicke in die biographische Relationierung von Schulpraktika und Praxiserfahrungen während des Vorbereitungsdienstes*. Springer Fachmedien Wiesbaden.

Mayr, J. (2006). Theorie + Übung + Praxis = Kompetenz? Empirisch begründete Rückfragen zu den „Standards der Lehrerbildung". *Zeitschrift für Pädagogik, 51*, 149–163.

McNiff, J. (2013). *Action research: Principles and practice*. Routledge.

McNiff, J., Lomax, P., & Whitehead, J. (1997). *You and your action research project*. New York: Routledge.

Mills, G. E. (2011). *Action research: A guide for the teacher researcher* (4th ed.). Boston: Pearson.

Mtika, P., & Gates, P. (2011). What do secondary trainee teachers say about teaching as a profession of their "choice" in Malawi? *Teaching and Teacher Education, 27*(2), 424–433.

Oelkers, J. (1999). Studium als Praktikum? Illusionen und Aussichten der Lehrerbildung. In: F-O. Radtke (Hrsg.), *Lehrerbildung an der Universität. Zur Wissensbasis pädagogischer Professionalität* (S. 66-81). Frankfurt am Main: Fachbereich Erziehungswissenschaft der Johann Wolfgang Goethe-Universität.

Rossman, G.B., & Rallis, S.F. (1998). *Learning in the field: An Introduction to qualitative research*. Thousand Oaks, CA: Sage Publications.

Sales, A., Traver, J. A., & García, R. (2011). Action research as a school-based strategy in intercultural professional development for teachers. *Teaching and Teacher Education*, *27*(5), 911–919.

Schubarth, W. (2007) *Endlich Praxis! Die zweite Phase der Lehrerbildung Potsdamer Studien zum Referendariat*. Frankfurt am Main: Peter Lang.

Schubarth, W., Speck, K., & Seidel, A. (2011). *Nach Bologna: Praktika im Studium– Pflicht oder Kür. Empirische Analysen und Empfehlungen für die Hochschulpraxis*. Potsdam: Universitätsverlag Potsdam.

Schubarth, W., Speck, K., Seidel, A., Gottmann, C., & Kamm, C. (2012). *Studium nach Bologna: Praxisbezüge stärken?!: Praktika als Brücke zwischen Hochschule und Arbeitsmarkt*. Springer DE.

Seidman, I. (1998). *Interviewing as qualitative research. A guide for researchers in education and social sciences*. New York: Teachers College Press.

Silverman, D. (1993). *Interpreting Qualitative Data*. London: Sage Publications.

Southgate, E., Reynolds, R., & Howley, P. (2013). Professional experience as a wicked problem in initial teacher education. *Teaching and Teacher Education, 31,* 13-22.

Terhart, E. (2001). *Lehrerberuf und Lehrerbildung. Forschungsbefunde, Problemanalysen, Reformkonzepte*. Weinheim/Basel.

Valencia, S., Martin, S., Place, N., & Grossman, P. (2009). Complex interactions in student teaching: Lost opportunities for learning. *Journal of Teacher Education, 60*, 304–322.

Vogel, T. (2011) Zum Theorie-Praxis-Verhältnis in der Lehrerbildung als Übergangsproblem. In: Diehl, T., Krüger, J., Vogel T. (Hrsg.): *Hochschultage Berufliche Bildung*. (S. 1-14). Spezial 5, Workshop 14.

Warneke, D. (2007) *Aktionsforschung und Praxisbezug in der DaF-Lehrerausbildung*. Kassel: Kassel University Press GmbH.

Wildt, J. (2011) „Forschendes Lernen" als Hochform aktiven und kooperativen Lernens. In: Diedrich, R./Heilemann, U. (Hrsg.): *Ökonomisierung der Wissensgesellschaft*. Berlin: Duncker & Humblot, 93-108.

Yin, R. K. (2009). *Case study research: Design and methods (4th ed.)*. Thousand Oaks, California: SAGE Publications, Inc.

Zeichner, K. (2010). Rethinking the connections between campus courses and field experiences in college- and university-based teacher education. *Journal of Teacher Education, 61*, 89–99.

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Comparative Measures of Grit, Tenacity and Perseverance

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Abstract. Motivation to learn has been shown to be an important asset for success in school and career. This study examined the relationship between psychometric scales as well as survey items regarding motivational characteristics related to learning and achievement. Newer measurement indices related to grit and perseverance are compared to historical indices related to persistence and motivation to study to explore the commonalities or differences in the measures. Major findings were that the three scales of Study Habits from the Computer Attitude Questionnaire (CAQ), Grit part 2 Persistence of Effort and CAQ Motivation / Persistence were closely associated with each other while Grit part 1 Consistency of Interests remained independent, as a separate measure. Multiple gender differences in the measures indicate that females in this study are higher in most of the areas measured.

Keywords: perseverance, grit, persistence, study habits, gender

Introduction

Motivation to learn has been shown to be an important asset for success in school and career. For many years, researchers have studied characteristics that are likely to result in success. Duckworth et al. (2007) introduced a 12-item survey widely used to measure the construct of grit. The two subscales of their instrument were *consistency of interests* and *perseverance of effort* (Duckworth & Quinn, 2009). In 2013, the U.S. Department of Education published a commissioned study in this area expanding this concept to include tenacity and perseverance, and noting that these were non-cognitive factors critical for success for 21st century learners (Shechtman et al., 2013). Other studies have used validated measures of concepts that appear to be aligned with the Department of Education's report entitled *Promoting grit, tenacity, and perseverance: Critical factors for success in the 21st century* (Shechtman, et al., 2013). Since 1991, the authors of this paper have conducted studies including the

concepts of motivational persistence and study habits using items originally derived for multinational comparisons by IEA (Collis et al., 1996). This paper addresses the relationship between the Duckworth measures and similar measures used by the authors for more than two decades as scales on the Computer Attitude Questionnaire (CAQ) (Knezek & Christensen, 1996; Christensen & Knezek, 2002).

Related Literature

A recent U.S. federal government report has focused on grit as a measure of persistence in success (Shechtman, et al., 2013). Some researchers (e.g. Duckworth, et al, 2007) have been studying grit since the 1990s, but even before the term grit was made popular, as early as the 1980s, the International Association for the Evaluation of Educational Achievement (IEA) had been studying a similar composite attribute known as motivation and/or persistence and study habits (motivation to study) on a trans-national basis (Plomp & Pelgrum, 1991; Pelgrum et al., 1993; Collis, et al., 1996). Use of the IEA-based measures has continued by the authors of the current paper into the 21st Century (e.g. Christensen & Knezek, 2002). This paper examines the alignment of motivation/persistence with the newer concept of grit.

Duckworth delineates grit from resilience as "not just having resilience in the face of failures, but also having deep commitments that you remain loyal to over many years" (Perkins-Gough, 2013, p. 16). In a study looking at multiple indicators of success for cadets at West Point Military Academy including SAT scores, class rank and leadership ability, an additional survey to determine the amount of grit was administered. Of all the variables measured, grit was the best predictor regarding which of the cadets would drop out after the difficult first summer training (Duckworth, et al., 2007). Many other studies conducted by Duckworth et al. (2009) indicated that grit can be a predictor of success over and beyond talent. More schools are beginning to recognize the importance of character traits such as grit and resilience as indicators of future success.

Duckworth, et al. (2009) define grit as "trait-level perseverance and passion for long-term goals." The six Duckworth, 2009, et al., studies found that grit scores did not differ between genders. The summary of findings indicates that "Perseverance of Effort was a superior predictor of GPS (grade point average), extracurricular activities and (inversely) television watching among adolescents" (Duckworth & Quinn, p. 172). In a study involving adults, findings indicated that adults with higher levels of grit progressed farther in their education and made fewer career changes than adults with lower levels of grit (Duckworth, et al., 2009). Grit as defined by Duckworth and colleagues clearly has been established as a concept worthy of wider recognition.

Current Study

This study seeks to determine the relationship between survey scales as well as survey items regarding motivational characteristics related to learning. Several analysis techniques were used to examine the consistency of the scales forming the basis of this study, as well as the integrity of psychological constructs, and

their relationship to each other. These include internal consistency reliability analysis, factor analysis, hierarchical cluster analysis and multidimensional scaling. Each technique has been selected for a specific purpose, as well be explained in the following sections.

Methodology

Research Questions

Two research questions were addressed in this study:

1. Are traditional measures of motivation/persistence related to the more recently established measures of grit in secondary school students?
2. Are there differences in levels of grit for male versus female students?

Instrumentation and Participants

One hundred fifty-two (152) upper secondary school participants completed the Duckworth Grit survey and the CAQ Motivation/Persistence and Study Habits subscales. These students were finishing their final year of secondary school at a residential academy of mathematics and science accepting applicants from across the state of Texas. Academy participants acquire two years of university credit while completing their last two years of secondary education.

Reliability of Motivation/Persistence and Grit Scales for Secondary School Students

Internal consistency reliability was assessed for the original scales used in this study in order to determine the performance of the scales with secondary school students. The Grit survey items are shown in Table 1 while the Motivation/Persistence and Study Habits items are shown in Table 2.

Table 1. Grit Survey Items

Part 1. Consistency of Interests
1. I often set a goal but later choose to pursue a different one.
2. New ideas and new projects sometimes distract me from previous ones.
3. I become interested in new pursuits every few months.
4. My interests change from year to year.
5. I have been obsessed with a certain idea or project for a short time but later lost interest.
6. I have difficulty maintaining my focus on projects that take more than a few months to complete.
Part 2. Perseverance of Effort
7. I have achieved a goal that took years of work.
8. I have overcome setbacks to conquer an important challenge. I finish whatever I begin.
9. Setbacks don't discourage me.
10. I finish whatever I begin.
11. I am a hard worker.
12. I am diligent.

Table 2. CAQ Motivation/Persistence and Study Habits Items

1. I study by myself without anyone forcing me to study. (701)
2. If I do not understand something, I will not stop thinking about it. (702)
3. When I don't understand a problem, I keep working until I find the answer. (703)
4. I review my lessons every day. (704)
5. I try to finish whatever I begin. (705)
6. Sometimes, I change my way of studying. (706)
7. I enjoy working on a difficult problem. (707)
8. I think about many ways to solve a difficult problem. (708)
9. I never forget to do my homework. (709)
10. I like to work out problems which I can use in my life every day. (710)
11. If I do not understand my teacher, I ask him/her questions. (711)
12. I listen to my teacher carefully. (712)
13. If I fail, I try to find out why. (713)
14. I study hard. (714)
15. When I do a job, I do it well. (715)

As shown in Table 3, Cronbach's alpha for the original CAQ Motivation/Persistence scale (.74) and the Study Habits scale (.82) compare favorably with the reliability estimates of .77 and .81 previously published for these two scales (Knezek et al., 2000). Similarly, the reliabilities found in the current study for the scales of the Grit survey part 1 Consistency of Interests (.74) and Grit survey part 2 Perseverance of Effort (.68) are acceptable or better (DeVellis, 1991) as were the reliabilities previously published by Duckworth and colleagues (Duckworth, et al., 2007, 2009). Duckworth and Quinn (2009) analyzed the Grit 12-item survey with two factors and determined that the measurement properties were better for an 8-item (two factor) survey (Grit-S). However, for this study, the reliability analysis for the scales from the 8-item Grit survey and the 12-item Grit survey did not support the higher reliability analysis on both of the Grit scales. Overall, the reliabilities were somewhat lower for the subjects in the current study, on all scales.

Table 3. Cronbach's Alpha for CAQ and Grit Scales

Scale	*Published Alpha*	*Current Study*
CAQ Motivation/Persistence (items 1,2,3,5,7,8,9,14,15)	.77 (2000)	.74

CAQ Study Habits (items 1,4,5,6,9,10,11,12,13,14)	.81 (2000)	.80
CAQ SH/Persistence (15 items)	–	.82
Grit Survey Part 1 with 6 items (items 1,2,3,4,5,6)	.84 (2007)	.74
Grit Survey Part 2 with 6 items (items 7,8,9,10,11,12)	.78 (2007)	.68
Grit-S Part 1 with 4 items (items 1,2,5,6)	.73 to .79 (2009)	.64
Grit-S Part 2 with 4 items (items 9,10,11,12)	.60 to .78 (2009)	.72
Grit-S all 8 items (4 Pt. 1 + 4 Pt. 2) (items 1,2,5,6,9,10,11,12)	.73 to .83 (2009)	.75
Grit Survey all 12 items	.85 (2007)	
CAQ 15 + Grit 12	–	.84

Construct Validity

Exploratory factor analysis (principal components, varimax rotation) was run on the two surveys separately. The Grit survey produced four factors with eigenvalues greater than one. Examination of the scree plot shown in Figure 1 indicated two to four factors likely existed. Forcing the factor structure to two factors resulted in the alignment of the twelve total items along two factors consistent with the Grit survey original scales. As shown in Table 4, only item 9, *I finish whatever I begin*, had extensive cross loading on both factors (.505 on Factor 2 and .471 on Factor 1).

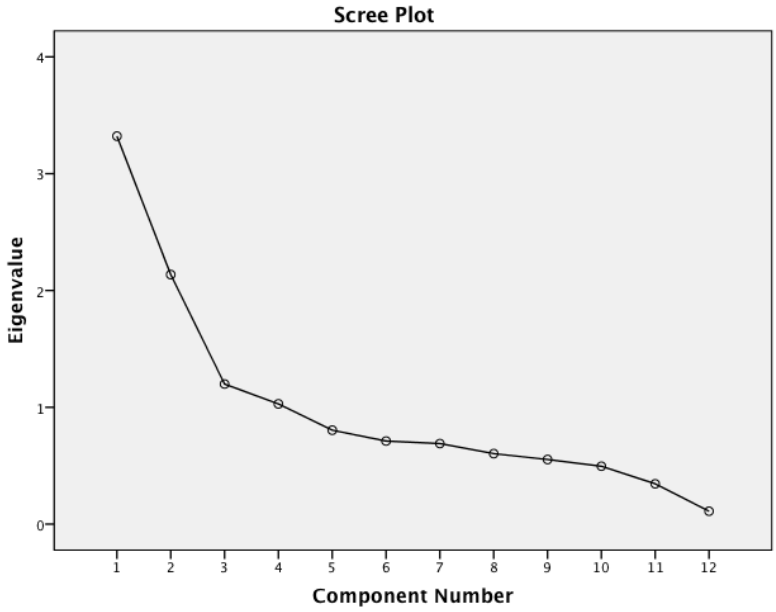

Figure 1: Screen plot of eigenvalues for Grit survey principal components.

Table 4. Factor Loadings for Grit Survey Items

Grit Item	Component	
	1	2
Grit Item 4 (Rev)	.774	-.167

Grit Item 3 (Rev)	.698	-.142
Grit Item 1 (Rev)	.698	.168
Grit Item 5 (Rev)	.644	
Grit Item 2 (Rev)	.604	.124
Grit Item 6 (Rev)	.473	.317
Grit Item 11		.888
Grit Item 12	.128	.852
Grit Item 8	-.102	.519
Grit Item 9	.471	.505
Grit Item 7		.451
Grit Item 10	.225	.373

Note: Extraction Method: Principal Component Analysis.
Rotation Method: Varimax with Kaiser Normalization.[a]
a. Rotation converged in 3 iterations.

Exploratory factor analysis (principal components, varimax rotation) was also run on the 15 items from the CAQ scales. The CAQ scales together produced four factors with eigenvalues greater than one. Examination of the scree plot shown in Figure 2 indicated two to three factors likely existed. Forcing the factor structure to three factors resulted in the most parsimonious solution, with Cronbach's alpha for Factor 1 = .73 (6 items), for Factor 2 = .74 (5 items) and Factor 3 = .65 (4 items). The factor loadings on the three factors are listed in Table 5. Because Factor 3 exhibited marginal reliability and was represented by only four items, only the first two factors were retained. Item 5, *I try to finish whatever I begin*, showed extensive cross loading between Factor 2 (.461) and Factor 1 (.444).

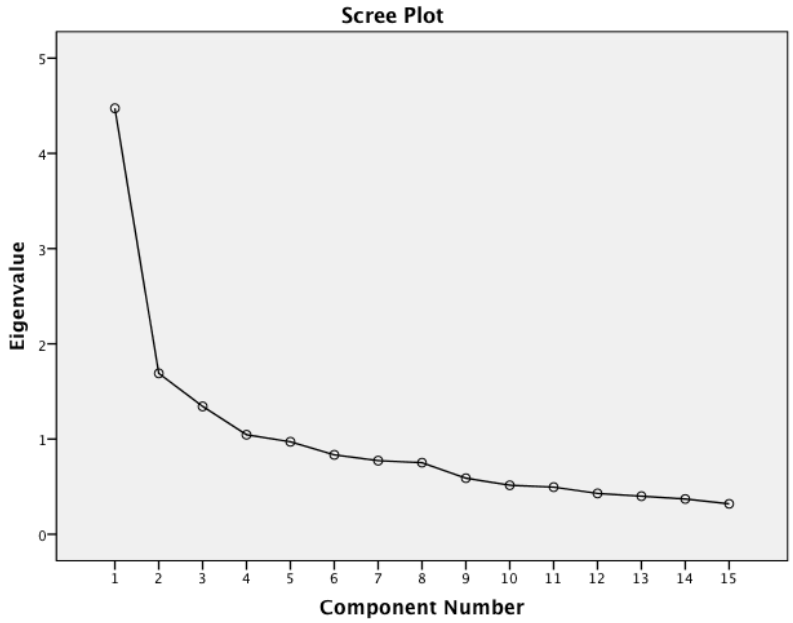

***Figure* 2. Screen plot of eigenvalues for CAQ principal components.**

Table 5. Factor Loadings for Three Factors Emerging from 15 Items on the CAQ

	Component		
	1	2	3
CAQ Item 14	.741		.347
CAQ Item 1	.681		-.142
CAQ Item 9	.585	.136	
CAQ Item 12	.526	.105	.408
CAQ Item 15	.449		.120
CAQ Item 13	.433	.256	.378
CAQ Item 8	-.141	.783	.231
CAQ Item 7		.731	.218
CAQ Item 3	.366	.714	
CAQ Item 2	.356	.584	
CAQ Item 5	.444	.461	.281
CAQ Item 6	-.249	.134	.782
CAQ Item 11	.205	.109	.723
CAQ Item 4	.398		.541
CAQ Item 10	.252	.222	.440

Note: Extraction Method: Principal Component Analysis.
Rotation Method: Varimax with Kaiser Normalization.[a]
a. Rotation converged in 6 iterations.

Cronbach's alpha for each of the CAQ three-factor solution scales is shown in Table 6, along with comparable indictors for the 6-item and 4-item versions of the Grit scales. These internal consistency reliabilities range from minimally acceptable to very good according to guidelines established by DeVellis (1991).

Table 6. Internal Consistency Reliabilities for CAQ and Grit Scales

Subscale	*Reliabilities*
CAQ Factor 1 Study Habits (items 14,1,9,12,15,13)	.73
CAQ Factor 2 Persistence (items 7,8,2,3,5)	.74
CAQ Factor 3 Practicality (items 6,11,4,10)	.65
CAQ Motivation to Study (SH/Persistence items 14,1,9,12,15,13,7,8,3,2,5)	.78
CAQ 15 items	.82
Grit Survey Part 1 Consistency of Interests with 6 items (items 1,2,3,4,5,6)	.74
Grit Survey Part 2 Persistence of Effort with 6 items (items 7,8,9,10,11,12)	.68
Grit-S Part 1 Consistency of Interests with 4 items (items 1,2,5,6)	.64
Grit-S Part 2 Persistence of Effort with 4 items (items 9,10,11,12)	.72
Grit Survey all 12 items	.75
CAQ 15 + Grit 12 items	.84

Relationship between constructs on the Grit and CAQ scales

Scale scores were produced for each of the four constructs retained after factor analysis. A scale score for each subject on each construct was computed by averaging the five-point ratings for the items on each construct. Higher-order factor analysis (Dunn-Rankin, et al., 2004) was used to identify the relationships among the Grit and CAQ scales. As shown in Figure 3, the scree plot indicated one or two higher-order factors were likely to exist. The solution resulting in two higher order factors produced strong loadings for each scale, with CAQ Study Habits, CAQ Persistence, and Grit part 2 Perseverance of Effort forming higher-order Factor 1 (HF1) and Grit part 1 Consistency of Interests forming higher-order Factor 2 (HF2) on its own. These outcomes are shown in Table 7. Upon examination of the analysis, it appears that the CAQ measures are more closely aligned with the type of grit measured on part 2 of the Grit survey, the perseverance of effort rather than the consistency of interest.

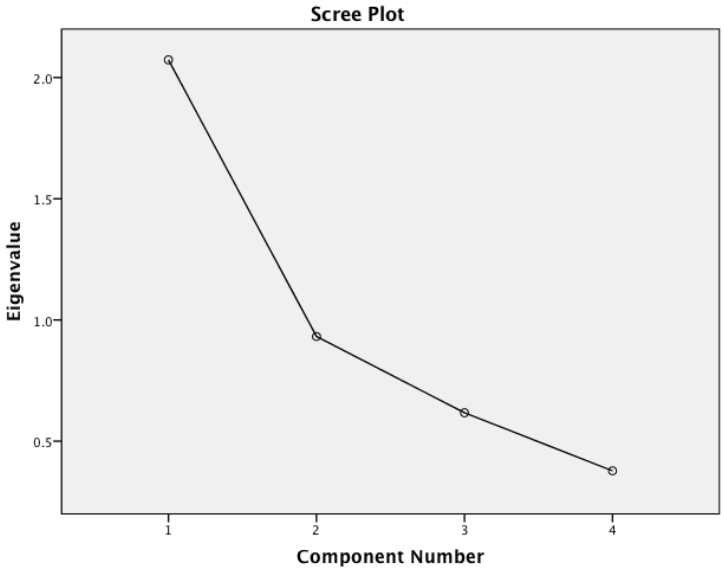

***Figure 3*. Screen plot of eigenvalues for higher-order factor analysis of CAQ and Grit scales.**

Table 7. Higher-Order Factor Loadings for Four Grit-related Scales

Measurement Indices	Component	
	1	2
CAQ Study Habits	.847	.170
CAQ Motivation / Persistence	.794	-.117
Grit Part 2 Perseverance of Effort	.748	.353
Grit Part 1 Consistency of Interests		.961

Note: Extraction Method: Principal Component Analysis.
Rotation Method: Varimax with Kaiser Normalization.
a. Rotation converged in 3 iterations.

A hierarchical cluster analysis (SPSS, 2010) was run on the four scale scores in order to further explore the relationships among the Grit survey and the CAQ scales. As graphically displayed in Figure 4, and more specifically in the dendogram connections illustrating the strengths of associations among the scales, CAQ Study Habits and Grit part 2 Perseverance of Effort clustered together at the first agglomeration stage, and were shortly joined by CAQ Motivation / Persistence. Grit part 1 Consistency of Interests became absorbed into the common cluster at the last agglomeration stage with a much greater distance. These relationships are consistent with the findings of the higher-order factor analysis.

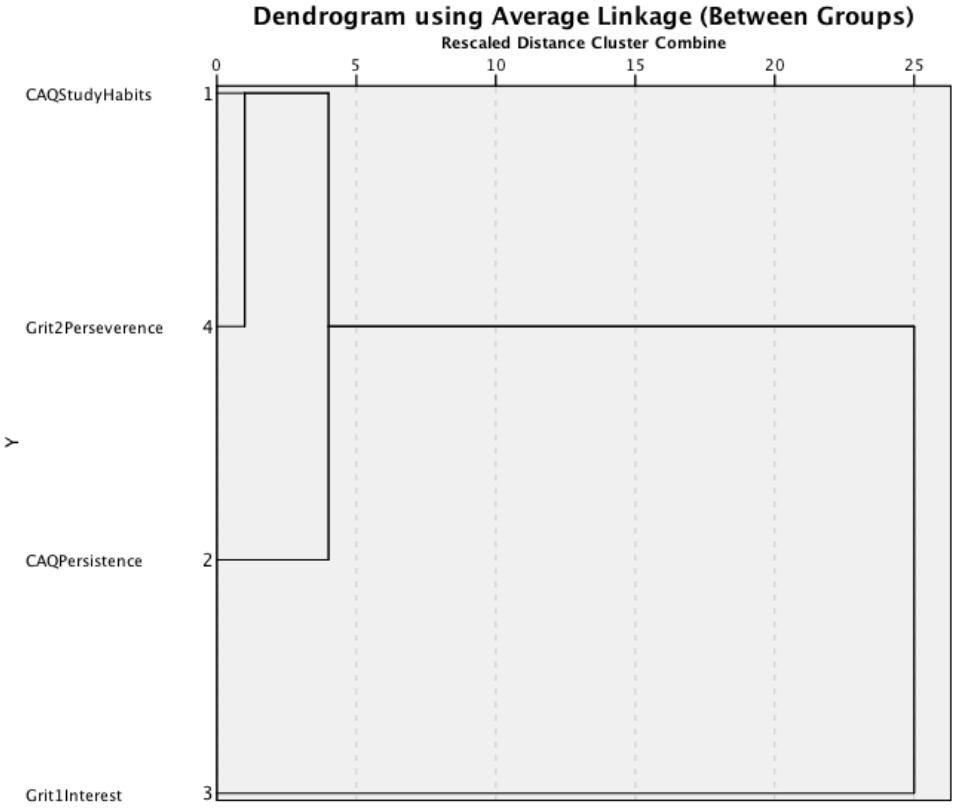

Figure 4: Hierarchical cluster analysis display for relationship among four scales

The Multidimensional scaling (MDS) procedure PROXSCAL (SPSS, 2010) was used to help determine the minimum number of higher order constructs that would adequately represent the four scales. As shown in Figure 5, a two-dimensional MDS solution places the scales as objects in relation to each other in a fashion congruent to the higher-order factor analysis and the hierarchical cluster analysis. Note that in the one-dimensional solution of Figure 6, Study Habits is physically close to Grit part 2 Persistence of Effort, and these two are not far from CAQ Motivation / Persistence. All three of these are distant from Grit part 1 Consistency of Interests. The total dispersion accounted for (D.A.F.) in the two-dimensional solution is .99985, indicating that almost all of the distances between the four scales as objects can be accounted for by placing the scales in the two-dimensional orientation shown in Figure 5.

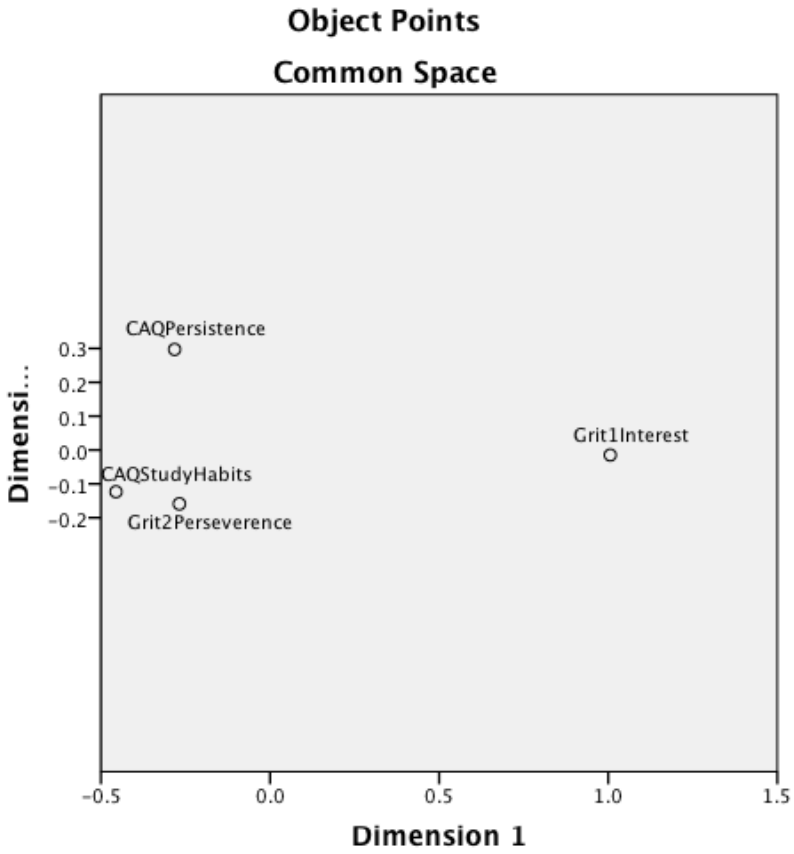

Figure 5: Two-dimensional multidimensional scaling solution for four measures of persistence, study habits, perseverance, and consistency of interests.

The one-dimensional solution produced by multidimensional scaling analysis (MDS) for the four scales in this study is shown in Figure 6. This solution places the three scales of CAQ Study Habits, Grit part 2 Persistence of Effort and CAQ Motivation / Persistence together at one extreme with Grit part 1 Consistency of Interests at the other extreme. The total dispersion accounted for (D.A.F.) is .99364, just slightly less than the two-dimensional solution.

A separate analysis with the Multidimensional Scaling procedure ALSCAL [SPSS, 2010] indicated that the one-dimensional solution accounts for 95% (RSQ = .95) of the variance in the distance matrix. This implies that minimal information will be lost if the simpler one-dimensional (straight line) solution is retained. However, the authors have elected to retain the two-dimensional solution shown in Figure 5 because it illustrates the fine granularity separation of CAQ Motivation / Persistence from the cluster of CAQ Study Habits and Grit part 2 Perseverance of Effort that is also represented in the hierarchical cluster analysis shown in Figure 4.

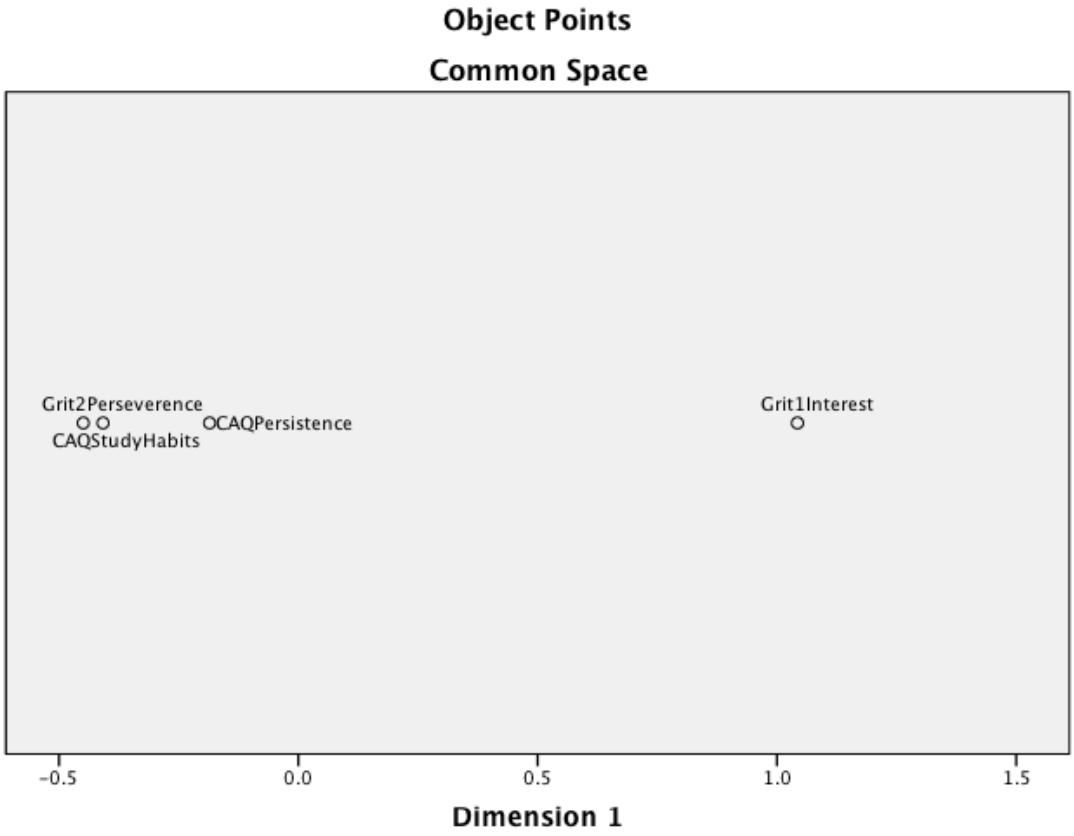

Figure 6. One-dimensional multidimensional scaling solution for four measures of persistence, study habits, perseverance of effort, and consistency of interest.

Gender Differences in Grit

As shown in Table 8, there were significant differences ($p < .05$) for gender in just one of the four factors measured. For Grit part 1 Consistency of Interests, females were found to be significantly ($p < .025$) higher than males. When effect sizes were calculated to assess the magnitude of the differences (rather than likelihood by chance), females were found to be higher than males in three of the four areas: Grit1Interest ES = .35; CAQ StudyHabits ES = .31; and Grit2Perseverance ES = .30.

Only in the area of CAQ Persistence, were females lower than males (ES = -.19). Since an effect size of .30 or greater is normally considered to be an educationally meaningful (Bialo & Sivin-Kachala, 1996), the trends in these data indicate that the female participants in this study may generally be higher than the male participants in several types of grit. Specifically for the total scale score of Duckworth's Grit survey (parts 1 and 2 combined), the females were significantly higher ($p = .011$) in the type of grit measured by the Grit survey, than the males. The effect size (Cohen's d) was .42, indicating a small to moderate magnitude of difference in male vs. female total Grit (Cohen, 1988).

Table 8. Gender Differences in Grit-Related Measures

Scale	Gender	N	Mean	Std. Dev.	Sig.	Effect Size
CAQ Study Habits	Male	79	3.95	.64		
	Female	72	4.14	.56		
	Total	151	4.04	.61	.056	.31
CAQ Persistence	Male	79	3.88	.83		
	Female	72	3.75	.49		
	Total	151	3.82	.69	.251	-.19
Grit1 Interest	Male	79	2.71	.71		
	Female	72	2.95	.62		
	Total	151	2.82	.68	.029	.35
Grit2	Male	79	3.87	.63		
Perseverance	Female	72	4.03	.44		
	Total	151	3.95	.55	.064	.30
Grit Total Score	Male	79	3.29	.53		
	Female	72	3.49	.42		
	Total	151	3.38	.49	.011	.42

Discussion

Two Kinds of GRIT

More than 100 years ago, Galton (1892) found large differences between the perseverance it takes to complete minor versus major accomplishments. Findings from this study indicate there are different kinds of grit being measured across the psychometric scales administered to these high school aged participants. Two types of constructs related to grit emerged among the four primary scales used in this study. It is possible that one type of grit is related to persistence and perseverance to accomplish a goal while another type of grit is related to being consistently interested in one thing over time – a breadth versus depth of interest. It is also possible that the underlying distinctions are related to concepts such as intensity and stamina. Additional research in this area is warranted.

Gender Differences in Grit

While the Duckworth et al. studies using the Grit survey found no significant differences by gender, the current study found significant differences (p =.011) in the original 12-item Grit scale. The current study had an equal distribution of males and females while the Duckworth studies were somewhat skewed in the area of gender. In the current study, females appear to be higher on three of the four primary scales used, and they may be lower than males on the fourth. This fourth area (CAQ Persistence) is somewhat focused on tackling a difficult problem and persisting until "winning the challenge" while the other three focus on consistency of interest over time, having good study habits, and steadily persevering in pursuit of a goal.

Study Limitations

National versus International Contexts. The International Association for the Evaluation of Educational Achievement (IEA) developed and validated the motivation /persistence and study habits items used in this study for a multi-national context. By contrast, the validity and reliability of the 12-item version of Grit was developed from a single-nation perspective and might not necessarily be most sensitive to the cultural nuances around the world. The current study was based on a sample of high-school aged students that was predominantly Asian American and Caucasian but also included representations of Hispanic and African American students. Although other languages in addition to English were spoken by subsets of the participants in this study, most were born in the US. Also because these students chose to attend a residential mathematics and science academy as juniors in high school, it is likely they are more homogeneous in their level of grit – with grit likely being high. Therefore this research could be viewed as a pilot study toward refinement of a grit instrument that could be used across a more broad population in the world.

Issues of Sampling and Generalizability. A note of caution is warranted with respect to whether the findings from previous studies cited in this paper, as well as from the current study itself, would necessarily generalize to all students. The research reported in this paper by Duckworth and colleagues focused on subjects (e.g. Military academy students) who would likely be considered highly motivated and possessing substantial grit. Likewise the students in the current study were selected as an entering class of 200 from among the brightest in the state in mathematics and science, and certainly college bound. Perhaps additional studies are warranted in which the participants selected are more diverse in their levels of grit before the findings reported in the literature regarding the psychometric construct(s) of grit are accepted as consistently existing throughout the general public. Nevertheless, if the delimitation that most studies appear to have been completed on persons high in grit, then findings regarding the importance of grit are consistent. For example, a study of more than 3500 participants attending nine different colleges found that follow-through (a type of grit) was the single best predictor, over many other predictors including SAT, high school rank, and high school extracurricular involvement, of significant accomplishments in college (Willingham, 1985).

Implications of Findings for Parents and Teachers

McMurry (2014) has pointed out that the current strong emphasis on intelligence scores for predicting children's success in school may be misguided given recent findings indicating the importance of grit. She has offered the following practical suggestions for parents:

1. Allow children to fail because of the choices they make.
2. Do not be a *snowplow f*or your child (clearing all obstacles).
3. Encourage your child to have a growth mindset.
4. Teach children how to set goals and identify necessary steps to achieve them.
5. As a parent, be a role model of grit yourself.

Based on the analysis by McMurry (2014), educational policy makers may wish to re-examine the question of what should be the goal of K-12 education? Is it to prepare students to be productive citizens in our communities and world or is it to achieve the highest possible scores on standardized tests to get into college? Duckworth's research on grit has shown that there are more accurate indicators of success than SAT or ACT scores (Duckworth & Quinn, 2009). Grit appears to have more to do with intrinsic motivation than extrinsic motivation. In Gladwells' book, *Outliers: The Story of Success*, he notes that it takes 10,000 hours of devotion to a craft or skill for mastery (Gladwell, 2008). Quite possibly it is grit rather than some external motivation that would cause someone to spend 10,000 hours perfecting their craft.

Conclusion

As far back as the 1800s, Galton (1892) studied biographical information to conclude that ability alone did not account for success. He further concluded that "ability combined with zeal and with capacity for hard labour" (p.33) were traits of high achievers. More recent studies of high achieving students continue to indicate that the zeal Galton described is similar to the indicators used to measure grit, perseverance, persistence and study habits described in this paper. There are many examples of students who the highest achieving students in their high school graduating class yet fail to be successful in college because they find they are not prepared to fail. They have not had to develop the grit it takes to conquer difficult material. Placing more emphasis on non-cognitive student measures such as perseverance and grit may play an important role in supporting student success in school and in the work place.

References

Bialo, E.R., & Sivin-Kachala, J., 1996. The effectiveness of technology in schools: A summary of recent research. Washington, DC: Software Publishers Association.

Christensen, R., & Knezek, G. (2002). Instruments for assessing the impact of technology in education. *Computers in the Schools, 18*(2/3/4), 5-25.

Cohen, J., 1988. *Statistical power analysis for the behavioral sciences* (2nd Ed.). Hillsdale, NJ: Lawrence Erlbaum Associates.

Collis, B., Knezek, G., Lai, K., Miyashita, K., Pelgrum, W., Plomp, T., & Sakamoto, T. (1996). *Children and computers in school*. Mahwah, NJ: Lawrence Erlbaum.

DeVellis, R.F., 1991. *Scale development*. Newbury Park, NJ: Sage Publications.

Duckworth, A.L., Peterson, C., Matthews, M.D., & Kelly, D.R. (2007). Grit: Perseverance and passion for long-term goals. *Journal of Personality and Social Psychology, 92*, 1087-1101.

Duckworth, A., & Quinn, P. D. (2009). Development and validation of the short grit scale (Grit-S). *Journal of Personality Assessment, 91*(2), 166-174. doi:10.1080/00223890802634290.

Dunn-Rankin, P., Knezek, G., Wallace, S., & Zhang, S. (2004). *Scaling methods (2nd ed.).* Hahwah, NJ: Lawrence Erlbaum.

Galton, F. (1892). *Hereditary genius: An inquiry into its laws and consequences*. London: Macmillan.

Gladwell, M. (2008). *Outliers: The story of success*. New York: Little Brown.

Knezek, G., & Christensen, R. (1996, January). *Validating the computer attitude questionnaire*. Presented at SERA, New Orleans, LA.

Knezek, G., Christensen, R., Miyashita, K., & Ropp, M. (2000). *Instruments for assessing educator progress in technology integration.* Denton, TX: Institute for the Integration of Technology into Teaching and Learning (IITTL).

McMurry, D. (2014). *The nitty gritty*. Dallas, TX: Good Shepherd Episcopal School.

Pelgrum, W.J., Janssen Reinen, I.A.M., & Plomp, Tj. (1993). *Schools, teachers, students and computers: A cross-national perspective.* The Hague: the International Association for the Evaluation of Educational Achievement.

Perkins-Gough, D. (2013). The significance of grit. *Educational Leadership, 71*(1), 14-20.

Plomp, Tj., & Pelgrum, W.J. (1991). Introduction of computers in education: State of the art in eight countries. *Computers in Education, 17*(3), 249-258.

Shechtman, N., DeBarger, A.H., Dornsife, C., Rosier, S., & Yarnall, L. (2013). *Promoting grit, tenacity, and perseverance: Critical factors for success in the 21st century*. U.S. Department of Education Office of Educational Technology.

SPSS. (2010). IBM SPSS Statistics Family. Retrieved from http://www.spss.com/.

Willingham, W.W. (1985). *Success in college: The role of personal qualities and academic ability.* New York: College Entrance Examination Board.

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Dismantling the Walls of Jericho: Reinventing the IEP to Include Multiple Perspectives

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Abstract. The paper examines various barriers which culturally diverse individuals and families face during the construction and implementation of Individualised Plans (IEP). Language competency, cultural competency, social and cultural constructs, time orientation, assessment, definitions of disability, notions of dependence and self-orientation present various barriers for persons with disabilities and their families. The author highlights these barriers and lists a number of recommendations amongst which are the development of empathetic relationships with parents, the introduction of cultural brokers with the same background of the family being serviced, establishing broader assessment areas before finalising assessments and expanding the role of the extended family during the IEP process.

Keywords: Individualized Educational Plan; Barriers; cultures

Introduction

The mandatory legislation as explained by the Individual with Disabilities Act (2004) has urged schools to promote interlinked participatory experiences between schools and parents. These experiences personified by the various activities organized by schools are being targeted for a more active participation by parents and for more involvements in educational processes, notably the Individualized educational process (henceforward the IEP). The IEP is a process in which a team composed of different professionals work in a transdisciplinary setting. During the process the child's present level of performance is established and goals (both short term and long term) are projected and later evaluated. The IEP must provide a justification of "the extent to which the child will not participate with children without disabilities in the general education class" (Special Focus Issue, 1999, p.9). Various legislations (Eg: Education for all Handicapped Children Act of 1975, The Education of the Handicapped Act Amendments of 1986, the Individuals with Disabilities Education Act of 2004) recognize family involvement as an integrative part of the IEP process.

It is duly assumed that such initiatives are catalysts towards more inclusive and effective participation from parents. Keith et al. (1998) established a positive correlation between the academic outcomes of students and parental involvement in school. This involvement is even more critical for parents whose

children are statemented as having a disability due to their mandatory participation in the IEP. By participating concurrently in the IEP process parents and professionals will be ensuring a levelled platform of communicative stance based on mutual understanding and respect.

Notwithstanding such benefits, research conducted by Lynch and Stein (1997) and Denessen, Bakker and Gierveld (2007) has shown that parents whose cultural and linguistic backgrounds differ from the host country are less involved in school matters. On the other hand Harry, 1992b found that children whose parents come from differing cultural and linguistic backgrounds form a significant percentage of the total Special Educational needs services.

Research conducted by Meece and Kurt-Costes (2001) shows that families are becoming more diverse in terms of level of education, occupation, religion, ethnicity, country of origin, beliefs and values. They also showed that Culturally and Linguistically diverse parents are often unfamiliar with special needs terminology, access arrangements, children's and parents' rights and availability of services. It falls within the realm of the school to provide opportunities which mitigate against the barriers towards full parental participation in their child's Individualized Educational Planning.

Communicating effectively with parents is an important precept towards understanding the cultural and linguistic assumptions brought forward both by school personnel and parents. Schools have the moral duty to enable parents to be reflective and critical on the resources available at school in order to assess what is best for their children. School staff should also provide special assistance (such as the provision of an interpreter) to enable parents to provide advocacy for their children. In culturally diverse settings communication in the IEP process tends to be vague with often general terms and devoid of any real mutual interaction between parents and school staff (Porter & Samovar, 1998). Besides, cultural groups have differing expectations about their role with the educational process of their children (Okagaki & Frensch, 1998; Nieto, 2000). Such differences are fertile ground for misunderstandings and miscommunications.

Lack of awareness of one's culture and the limits it might impose on the understanding of other cultures, such as the interpretation of cultural symbols or the ability to move from one reference point to another could be detrimental towards effective communication. The presupposition that there is only one cultural construct or one set of universal truths may lead to the assumption that the other party is familiar with procedures and policies of the existing system. This would invariably lead to significant misunderstandings during the IEP process. Parents and professionals might unwittingly engage themselves in a vicious circle of misunderstandings which could possibly lead to rising levels of anxieties.

Language Competency Barriers

Parents whose linguistic background is different from the host culture are often frustrated at not being able to communicate as effectively as desired. Research (eg: Turney & Kao, 2009; Boone et al., 1999; Green & Nefsky, 1999; Harry, 1992b) shows that proficiency in English language is the primary stumbling block for parents of differing linguistic background in their attempt to communicate effectively with professionals. Parents who experience inadequacies in participating effectively in IEP processes due to limited linguistic skills feel nervous and inadequate. Such discomfort affects negatively their relationship with school professionals and may even shun them from activities involving direct contact with teachers, inclusion coordinators and other school personnel. Such behaviour may be wrongly interpreted as general disinterest in child's welfare.

Parents who find difficulty in English Language usage may find diagnostic terminology difficult to grasp (Harry, 1992a; Zhang & Bennett, 2003). Terms such as "differential diagnosis", "lower cognitive functioning" or "developmental delay" can be difficult to understand, explain or even translate in another language.

Communicating across the subtleties of cultures is by no means an easy task. Body language, silence, colloquial expressions, pitch and intonation and pacing of speech all influence the overall interaction between parents and professionals. Labelling may vary significantly from parents to professionals. Parents may be familiar with "careless," "lazy," "lacks discipline," but may be not familiar with professional terminology such a "autistic," "learning disabled", or "low intellectual functioning". Sometimes there is no direct linguistic equivalence for terms like "autistic," "mental retardation" or "learning disability" (Chan, 1998; Harry, 1992a; Smith & Ryan, 1987).

Cultural Barriers

Barriers to communication also emerge out of cultural barriers. Parents coming from collectivist cultures may find it awkward to challenge the authority of a teacher (Smith, 2001). Their respect for authority, derived from the teachings of religious and political figures such as Confucius may act as barrier towards active involvement of parents in the IEP process (Harry, 1992a; Zhang & Bennet, 2003). Moreover, Denessen, Bakker and Gierveld (2007), in their study on parental involvement in multiethnic schools found out that although parents were supportive of their children and urged them to study, they thought it was inappropriate to involve themselves in school matters and expected the teachers to take important decisions relevant to their child's education. They assumed that while it is the parents' responsibility to educate the child at home, so it is the responsibility of the teacher to educate properly the child at school. Huang (1993) in a study on Asian American families notes that teachers seeking active parental input were perceived as lacking competence and general understanding of teaching duties.

Verbal and nonverbal communication is culturally influenced and lack of knowledge about the influence that culture has on communicative behaviour can lead to unexpected negative outcomes. Non-verbal communication patterns can be easily overlooked or misinterpreted by both parents and professionals.

Cultural Competence Barriers

Goode (2001) explains that definitions of cultural competence have evolved over the years taking into account various social changes, research and state legislations. Culture is used to denote integrated patterns of human behaviours, which include communication patterns, norms, values, actions, customs, beliefs, religious affiliations and values and institutions of a racial, ethnic, religious, or social group.

All definitions of cultural competence found in literature incorporate the following four elements: 1) the value of diversity, 2) the assessment of one's own cultural makeup, 3) the ability to harness cultural knowledge, and 4) having the ability to modify service delivery while fully respecting cultural diversity. Programs which target cultural competency contain a common set of characteristics namely: 1) a clearly defined philosophy and policies, (2) policies that reflect the ethnic composition being served, 3) an emphasis on education, training and curriculum development (Cross et al., 1989, p.39). Goode (2001) expanded the above characteristics and stated that a service delivery system needs to be driven by culturally preferred choice and should be aimed at cultivating self-determination skills to the person or family requesting service.

The National Centre for the Dissemination of Disability Research (NCDDR, 1999) emphasised empowerment as the most important element of cultural competence. Empowerment involves the ability to act as an ally with the people requiring service rather than passively assist them towards the service. Kalyanpur and Rao (1991) further explained that:

> Empowerment signifies changing the role of a service provider from that of an expert to that of an ally or friend who enables [individuals] to articulate what they need . . . It involves caring, which builds supportive relationships; respect, which builds reciprocity; and the acceptance of differences, which builds trust (p. 35).

Harry et al. (1995a) warned against developing a surreal sense of cultural competence based on superficial cultural assumptions such as clothing, food, holiday and festivities which are associated to specific racial groups. Professionals need to examine the cultural lenses through which they see the delivery of services of the families they serve.

The Social Construction of Disability

Disability is a socially constructed concept. Luft (1995) observes that disability categories are a result of middle-class developmental norms. Harry (1992b) agrees with Luft's (1995) observations and insists that professionals interpret the

model (of disability) present in the law as the one to be adopted. Professional behave in a way which assumes that the definitions of disability emanating from the pro western culture of the United States are, in fact, universal truths.

Harry (1992b) argues that the universal acceptance of such norms lies in the perception that experts possess unchallenged knowledge and expertise about disabilities. This perception overrides other perceptions and understandings held by individuals, families and communities. This does not mean that disabilities do not exist but the underpinnings surrounding various conceptions of disability vary according to the context in which it evolves and that diagnosis is also culturally derived. Also, the impact that such disabilities have on the individual and his/ her family is underpinned by the cultural norms pertaining to that culture. On a similar note, Smart and Smart (1997) conclude that disability is not only the effect of nature or unexpected circumstances but also society defines and diagnoses disability.

Different Cultural Constructs of Disability

Numerous authors argued that the term "disability" is a socially constructed concept (Harry, 2002). The different conceptualizations of disability is itself a delimiting factor which prevents families from differing cultural backgrounds from seeking the services that they need or are entitled to. Gallagher (2004) observed that all societies recognize that individuals with physical, psychological or sensory impairment stand out from other non-disabled members within that society.

Families from diverse cultures may opt for an extended family member to accompany them during interaction with professionals (Gannotti, Headworker, Groce & Cruz, 2001). Hence decision making processes might include the input of family members who are not nuclear. Such practice may be viewed somewhat negatively by various professionals who expect the nuclear family to take decisions for their children.

Time–dependent barriers

The IEP process is a lengthy process requiring coordination efforts from both parents and professionals. Culturally diverse parents who are unfamiliar with formal, interlinked procedures such as MAPS (Making Action Plans), assessment reports, statementing and appeals procedures may perceive these processes as overly bureaucratic and unhelpful. The technical jargon frequently included in forms, letters, circulars and reports related to the IEP process provides a psychological barrier for culturally diverse parents. Also language translators for parents from diverse linguistic backgrounds may not be readily available and this increases difficulty in communication and creates feelings of impersonality and enstrangement.

The inherent structure of the IEP demands certain objectives to be met within specific periods of time. Such structure may be difficult to internalize for parents

whose culture is not driven by particular time constraints. Professionals whose demeanour demands rigid formal structures can be wrongly perceived as indifferent and cold. Harry (1992a) points out that IEPs who are formal and time-bound may be perceived as intended only to satisfy a legal requirement rather than as a vehicle into putting the child at the centre of the IEP process itself. Parents who expect a high level of social communicative patterns may feel indifferent and alienated from poorly articulated interactive patterns of communication.

Working hours could also be a barrier to family participation in the IEP. IEP meetings are usually scheduled in the mornings when parents have work commitments. Also, the family could have other children who would need child care or transportation which might clash with IEP constricted schedules.

In some cultures, a high level of personal interaction is more important than getting down quickly to business. This frequently creates a sense of uneasiness between culturally diverse parents and professionals. Some families may not wish to project much into the future goals of their children. Some families might also wish to take their time and consult their extended family members before taking decisions which affect their children's future.

Assessment related barriers

Assessment procedures requiring determinate answers such as 'Yes' or 'No' may leave little space for parents to express themselves or offer alternative and diverse solutions to a problem. Many a time standardized tests are appropriate only on the population on which standardization has occurred and does not take into account cultural and linguistic diversities within families thus leading to the doubtful validity of instrumentation and consequently on reliability of results (Baca & Cervantes, 1989; Ford, 2004; Ford 2010).

Culturally diverse parents may hold different perceptions as what constitutes a disability. For example it is well known that Attention Deficit and Hyperactivity Disorder is largely misunderstood due to differing cultural norms.

By comparing Korean and US parents/teachers, Moon (2011) studied different perspectives on Attention Deficit Hyperactivity Disorder and concluded that cultural influence was a major determinant in the treatment and diagnosis of Attention Deficit Disorder and Attention Deficit Hyperactivity Disorder. In Korea, teachers and parents whose educational perspectives are largely influenced by Confucianism, feel that children's distractive behaviours is a result of their own incompetence and is a negative reflection on themselves and their authority. They assume personal responsibility for children's distractive behaviours, and have negative attitudes toward medication because the medication does not help to increase academic improvement. In the U.S. parents and teachers, influenced by western culture, tend to focus on independence and hence take no personal responsibility for the children's behaviours. Instead, they

focus on controlling children's behaviour by exploring possibilities and treatment and were more open to external professional intervention. Parents and teachers in the US were more positive about medical treatments because medication helps to reduce children's distractive behaviours. Other barriers, which culturally diverse families face is that service providers in schools lack the training necessary in working with families (Bailey, Buyese & Palsha, 1990).

Definition of disability

The concept of special needs is socially and culturally determined (Lindqvistb & Bergströmc, 2010). Hence concepts of special education in a particular culture may be different from that of another culture. Different cultures may also differ in what is age appropriate behaviour and development. What a particular culture may consider as appropriate another culture may consider it as a disability. In highly collectivistic cultures where possessions are perceived as communal, a child whose behaviour demonstrates a sense of community and belonging is considered to be ideal in that culture. However if that child is observed in a culture where individualism is a highly valued attribute then his behaviour would not be viewed by the host culture as appropriate. On the same line of thought, a child whose cognitive capacities are considered as low within a particular culture may be viewed average or high in another culture. Also, in cultures where access to education is limited, a high academic performance may not be a desired goal.

Culturally diverse parents may perceive their child's behaviour as problematic but may not think of it as sufficiently problematic as needing intervention or may not be ready to have the condition written down, i.e. statemented. In her study on Puerto Rican parents (Harry, 1992b) found that parents did not think of their children's reading or challenging behaviour in terms of a possible disability. Instead the interpreted these behaviours as arising from teachers' incompetence, confusion between English and Spanish language or as extreme shyness. Puerto Rican parents frequently point out to the fact that there is an overrepresentation of their children in special education and that professionals attribute their children lack of competence arising out of disabilities rather than lack of exposure to the teaching of English Language. In cultures where parents interpret academic challenges as a lack of control have difficulty in understanding terminology related to disability such as ADD (Attention Deficit Disorder), ADHD (Attention Deficit Hyperactivity Disorder), Dyslexia, Dyscalculia, etc.

On the other hand, school professionals unfamiliar with parenting practices from other cultures may wrongly interpret different ways of raising children as 'inappropriate'. A case in point is when a parent together with her child visited school during a parent's meeting and did not display any form of regard to her son in front of his teacher. The teacher interpreted this behaviour as lack of interest but when the parent was interviewed later it came out that, in her culture, it was inappropriate to show affection in front of other people. Parents who are reluctant to show emotional affection in front of school professionals

may also find it difficult to advocate for their children in a way which seems appropriate from the lenses of school personnel. Parents who come from a different culture from that of the mainstream may find the principles upon which special educational interventions are based as incompatible with their culture. Professionals must be aware that their cultural assumptions are the linchpins upon which their interventions are based.

Western societies view disability in terms of the equality principle, i.e. a person is viewed as having a deficit of some form or another and so it is society's duty to mitigate against this deficit so as to remediate and reengage that person back into society. However, this might not be the view of parents whose culture is not western. Garcia et al. (2000), in their study on sociocultural perspectives on Mexican- American parents found that mothers believed that their children were just developing at a slower rate and that there was ample time for development later on in life. This perspective influenced the way professionals reacted to parents and the kind of intervention being followed.

Other studies (eg: Weber & Newmark, 2007; Stuart, 2005; Malacrida, 2002; Wong, 2009; Angley, Semple, Hewton, Paterson & McKinnon, 2007) have suggested alternative 'cures' such as acupuncture and consulting mediums together with other interventions. Parents coming from different cultural and linguistic backgrounds may view professional intervention as being a direct violation of the will of a supreme being. Skinner, Correra, Skinner and Bailey (2001) found that adherence to religious views had a major impact on the way some parents viewed their children's disability as a blessing. In their study they cite parents claiming that they view disability as God's special blessing and as a reward for being excellent parents.

Interdependence vs Dependence

The notion of interdependence vs dependence is also conceptually different between Western and non-western cultures. While non-Western cultures emphasise the importance of family role as the network on which interdependence is based (Olsen & Skogrand (2009), western philosophy rests upon a strong preference for independent skills (Carter et al, 2006). These two rather different approaches can be of a hindrance to the development of the IEP process. Hence, professionals who have been trained in fostering independent skills to children with physical and intellectual disabilities may unknowingly judge parents as being overprotective and hindering the promotion of independent skills. These conflicting views may be difficult to reconcile to the extent that the IEP process is marred from being a tool designed to help the child achieve his/ her full potential. Parents may wrongly be thought of 'lacking knowledge' and 'selfish'. The effectivity of the IEP process depends on the commitment of both parents and professionals towards an integrative and inclusive IEP in which the welfare of the child is put at the very heart of the process. IEP processes and reviews must respect a combination of elements which are at heart to both parents and professionals.

Collectivist vs Individualistic Orientations.

The social construction of disability and the differing contextual meaning of the term 'independence' can affect the extent to which people with disabilities from diverse cultures make use of social services and other supportive social structures. NCDDR (1999) pointed out that the American culture favours individualism as one of the most important values in its mainstream culture. Individualism, as a value orientation, clearly permeates every aspect of services such as social work, counselling, psychotherapy, rehabilitation programs and independent living centres. However, the value of individualism, which is so evident in the United States is not so intrusive in other cultures. In fact people from diverse racial and ethnic groups tend to hold collectivistic value orientations which favour the role of interdependence within the family rather than emphasising independence. People from diverse cultures have also reported perceptions of disability as a reflection upon and responsibility of the entire family.

The National Commission for Disabilities in its bulletin entitled Disability Rights Update found that cultural differences about concepts such as self-determination, self-advocacy self sufficiency, control over one's life, individual decisions, and minimal reliance on others, may be disrespectful or even offensive towards a person with a disability (NCD, 1999, p. 15).

Recommendations

Reaching the desired outcome from an IEP process is only possible through the development of mutual respect and a genuine effort to include multiple perspectives in the IEP itself. Being sensitive to the needs of others, acknowledging differences and working wholeheartedly towards a set of agreed targets are essential prerequisites toward an effective IEP process. The primary goal of the IEP is to come up with a number of targets carefully constructed by parents and professionals to determine the best possible service that meets the child's needs. Hence, it is of utmost importance that a mutual agreement is reached between all stakeholders.

In order to be able to reach a mutual agreement one has to be able to recognise his cultural biases and assumptions. Heads of school, teachers and inclusive coordinators need to re-examine their approaches of working with parents whose culture is different from the host so as to improve communicative patterns. When a child is suspected to have a disability a period of emotional instability begins for the parents (Collins & Collins, 2001). Such emotional instability is frequently exasperated by the need to contact a number of professionals within a short time frame. It is important for professionals to understand that temporal perceptions are also culturally influenced and hence more sensitivity is needed. The following recommendations might help professionals in their quest towards a more smooth course of action when interacting with parents:

- Make initial contact with parents prior to Individualized Educational planning. Evaluate and provide for family difficulties such as childcare, working time of parents, transportation and location of services. This would need to co-ordinated between local village councils and the School Senior Management Team.

- Identify the cultural underpinnings which shape interpretations of a student's difficulties, the IEP process and implementation. Particular attention should be directed at cultural holidays and special religious periods during the year. A cultural mediator (cultural broker) would need to take this actively into account during initial contacts with parents and the child with disability himself/herself.

- Understand culturally bound behaviour especially non-verbal communication, body language and language prosodics. This requires a genuine effort and open disposition from all professionals within a trans-disciplinary team.

- Acknowledge cultural differences identified and continuously model mutual respect practices.

- Provide a reviewed and simplified version of relevant literature to parents. Allow parents time to digest information and ask for feedback. In particular give culturally diverse parents an explanation of country laws related to disability. Elicit from parents their views on disability, placements, statementing processes and IEP meetings. This would fall within the realm of the inclusion coordinator together with a legal representative of the family or group culture.

- Promote mutual understanding of school policy, practices and procedures with the family being serviced (Green & Nefsky, 1999). This could be negotiated between the senior management team of the school, parents and their legal representatives.

- By means of continuous discussions determine the most effective ways of infusing professional recommendations into the value system of the family

- Advocate for the provision of a cultural brokers who would be able to identify areas of significant cultural disparities and be able to work through areas of concern. They would be able to anticipate areas of miscommunication and provide an opportunity to explore stakeholders concern. University trained cultural brokers need to have a cultural background which is similar to that of the family being serviced. Such services need to be maintained throughout the process so as to ensure a positive build-up in relationship between service providers and the family being serviced.

- Since the class teacher and the learning support assistant are usually in close contact with the family they would be able to gauge the family readiness for support. Too much information giving can be a difficult task to handle for most parents.

- Sustaining effective communication is essential for productive and collaborative relationships. The IEP meeting should serve as yet another opportunity for developing awareness of other cultures and deliberately act towards assimilation of practices.

- Trust takes long to build and can easily be lost. Taking the time to develop understanding, concerns, priorities and needs is time well invested in the understanding of the whole IEP process.

- Developing empathy towards other cultures is a preamble towards the facilitation of communication.

- Never underestimate the potential of Cultural and Linguistically Diverse family members. Advocate new roles for family members (eg: being part of a pressure group that promotes equality in Education).

- Use native language to facilitate communication.

- Define goals which are consistent with the family's experiences, religious values, and cultural orientation. The statementing board could help in clarifying these goals, always putting the needs of child as the topmost priority.

- Identify a broad base of assessment areas before finalizing as assessment. Assessments can be made more culturally fair and valid by being administering in the primary language of the person taking the exam and have interpreters translate test questions. Psychometrists together with school personnel need to work on discarding questions that groups perform very differently on and eliminate items that may seem offensive to certain groups, keeping in mind the background of the person. It would be inappropriate to assume that everyone has had the same educational and social opportunities. Also, a range of tests need to be used using multiple sources of data. Never assume that a test is prefect especially when a particular culture group is consistently scoring low on a particular test.

- Keep regular updates of reviews and communicate these reviews effectively. College principals need to be allocated the necessary technological and human resources to be able to cope with the ever increasing demands of printed documentation.

Such recommendations can be infused in the first Individualized Educational Plan of the child and thus serve as a forum for the exchange of ideas. For such

exchange to be productive and effective a genuine effort from both parents and professionals needs to be sustained. Awareness of what constitutes different cultural perceptions and the impact that these might possibly have on the IEP communicative process is essential. Cultivating the skills which mitigate against cultural assumptions is a long process which requires constant reflection and re-evaluations of the points outlined above. It is through such efforts that it is ensured that IEP meetings truly serve their purpose as a tool for inclusion.

Call for Action

This enriching process may take long to establish itself as a common praxis. But, as professionals, we are all duty bound to provide all students with disability with the best possible service. The Individualised Educational plan needs to be reinvented to include multiple perspectives. This is an aspiration to which we must all commit ourselves to for the benefit of students and their families. Pilot studies, conducted by professionals from different backgrounds could target particular culture groups and communicate best practise to other professionals. Focus groups could be set up to work on projects related to multicultural education and disabilities.

Conclusion

Family centred approaches to disability programs and processes are necessary to recognize the unique strengths of each individual family. IEP processes must incorporate unique family setup and strengths rather than fitting in rigid established programs or services. Establishing a strong working relationship based on mutual respect, shared responsibility and collaboration is vital for the overall success of the IEP process (Greene & Nefsky, 1999). Professionals need to urge parents to learn skills to be able to stimulate self-determination in their child's life. Such self-determination skills need be discussed and agreed upon during the whole process of IEP. Professionals need to advocate for more participation of parents and protect their rights, should they be perceived as being infringed. Family support groups and extended family members should be invited to pursue more important roles in the child's IEP. Support groups can advocate for the rights of families and guide in the understanding of legal aspects. Support group may even serve as a bridge between professionals and parents, promoting cultural and diversity training and facilitate decision making processes. Transforming the roles of professionals from experts to allies is of vital importance. This will provide a fertile ground for development, implementation and evaluation of an IEP which will be truly conducive towards the effective functioning of all children within the classroom.

References

Angley, M., Semple, S., Hewton, C., Paterson F. and McKinnon, R. (2007). Children and autism— part 2—management with complementary medicines and dietary interventions (PDF). *Australian Family Physician 36* (10): 827–30. PMID 17925903.

Baca, L., & Cervantes, H. T. (1989). The bilingual special education interface (2nd ed.). Columbus, Oh.: Merrill.

Bailey, D.B., Buysse, V. & Palsha, S.A. (1990). Facilitating the full participation of culturally diverse families in the IFSP/ IEP process. *Infant Toddler Intervention*, 8, 227-249.

Boone , K.B., Victor, T.L., Wen, J., Razani, J., Ponton, M. (2007). The association between neuropsychological scores and ethnicity, language, and acculturation variables in a large patient population. *Archives of Clinical Neuropsychology*. Accessed online from http://www.csun.edu/~ljr77544/PDFs/Boone%20et%20al.,%20in%20press.pdf on 4th July 2014

Carter, E. W., Lane K. L., Pierson M., and Glaeser, B. (2006). Self-determination skills and opportunities of transition-age youth with emotional disturbances and learning disabilities. *Exceptional Children, 72*(3), 333-346.

Chan, S. (1998). Families with Asian roots. In E.W. Lynch & M.J. Hamson (Eds) Developing cross-cultural competence: A guide for working with young children and their families (pp. 210-251). Baltimore: Brooks

Collins, A.W. & Collins S.J. (2001). Journey into autism. *Focus on autism and other developmental disabilities, 16*, 20-26

Cross, T., Bazron, B., Dennis, K., & Isaacs, M., (1989). *Towards A Culturally Competent System of Care, Volume I.* Washington, DC: Georgetown University Child Development Center, CASSP Technical Assistance Center.

Denessen, E., Bakker, J., & Gierveld, M. (2007). Multi-ethnic schools' parental involvement policies and practices. *The School Community Journal, 17*(2), 27-43.

Education for All Handicapped Children Act of 1975, 20 USC, 1400 et seq

Ford, D. (2010). Culturally Responsive Classrooms: Affirming Culturally Different Gifted Students. Gifted Child Today, 33, 50-53. Retrieved July 14, 2014, from the Ebscohost database.

Ford, D. (2004). Intelligence testing and cultural diversity: Concerns, cautions, and considerations. National Research Center on the Gifted and Talented, 1, 1-71. Retrieved 4th July, 2014, from the Educational Resources Information Center database.

Gallagher, H. (2004). What the Nazi "euthanasia program" can tell us about disability oppression. *Journal of Disability Policy Studies*, *12*(2), 96–99

Gannotti, M.E., Handwerker, W.P. Groce, N.E. & Cruz, C. (2001). Sociocultural Influences on Disability Status in Puerto Rican Children. *Physical Therapy* 81:1512-1523

Goode, T. (2001, revised 2006). Key definitions. Washington D.C.: National Center for Cultural Competence, Georgetown University Center for Child and Human Development.

Greene, G., & Nefsky, P. (1999). Transition for culturally and linguistically diverse youth with disabilities. Closing the gaps. *Mutiple Voices for Ethnically Diverse Exceptional Learners, 3(1),* 15-24.

Harry, B. (1992a). Making sense of disability: Low income, Pureto Rican parents' theories of the problem. *Exceptional Children*, *59*, 27-40.

Harry, B. (1992b). Restructuring the participation of African-American parents in special education. *Exceptional children, 59,* 123-131.

Individuals with Disabilities Education Improvement Act of 2004, *20* U.S.C. 1400 et seq. (2004).

Harry, B., Allen, N.A., & McLaughlin, M. (1995). Communication versus compliance: African-American parent's involvement in special education. *Exceptional Children*, 61, 364-37

Huang, G. (1993). Beyond culture: Communicating with Asian American children and families. ERIC/CUE Digest number 94.

Kalyampur, M. & Rao, S.S. (1991). Empowering low-income black families of handicapped children. *American Journal of Orthopsychiatry*, 61, 523-532.

Keith, T.Z., Keith, R., Quirk, K., Sperduto, J., Santillo, J. & Killings, S. (1998). Longitudinal effects of parent involvement on high school grades: Similarities and differences across gender and ethnic groups. *Journal of School Psychology,* 35*(2)*, 335-363.

Lindqvistb, R & Bergströmc, E. (2010). Pupils with special educational needs: a study of the assessments and categorising processes regarding pupils' school difficulties in Sweden. *International Journal of Inclusive Education*: 14 *(2)*, 133–151, Routledge: Taylor and Francis Group.

Luft, P. (1995) Addressing minority overrepresentation in special education: Cultural barriers to effective collaboration. Paper presented at the annual convention of the Council for Exceptional Children, Indianapolis, IN.

Lynch, E.W. & Stein, R.C. (1987). Parent participation by ethnicity: A comparison of Hispanic, Black, and Anglo Families. *Exceptional Children*, 54*(2)*, 105-11.

Malacrida, C. (2002). Alternative Therapies and Attention Deficit Disorder: Discourses of Maternal Responsibility and Risk. *Gender & Society* 16 *(3)*: 366–385. doi:10.1177/0891243202016003006.5

Meece, J. L., & Kurt-Costes, B. (2001). The Schooling of Ethnic Minority Children and Youth. *Educational Psychologist* 36 (1):1–7

Moon, S. (2011). Cultural perspectives on attention deficit hyperactivity disorder: A comparison between Korea and the U.S. *Journal Of International Business & Cultural Studies*, 61-11

National Center for the Dissemination of Disability Research (1999). Disability, Diversity and Dissemination: A Review of the Literature on Topics Related to Increasing the Utilisation of Rehabilitation Research Outcomes among Diverse Consumer Groups. *Research Exchange Newsletter*, 4 *(1).* Accessed online 4th July 2014 from: http://www.ncddr.org/du/researchexchange/v04n01/intro.html

National Council on Disabilities. (1999) Disability Rights Update. NCD Bulletin. June 1999. Accessed on 5 July, 2014 from <http://www.ncd.gov/bulletin/b0699.html>.

Nieto, S. (2000). Affirming diversity: The sociopolitical concept of multicultural education (3rd ed.). New York: Longman

Okagaki, L., & Frensch, P.A. (1998). Parenting and children's school achievement: A multiethnic approach. *American Educational Research Journal*, 35 *(1)*, 123-44.

Olsen, C. S. & Skogrand, L. (2009). Cultural Implications and Guidelines for Extension and Family Life programming with Latino/Hispanic Audiences. *The Forum for Family and Consumer Issues, 14* (1).

Porter, R.E., & Samovar, L.A. (1998). Cultural influences on emotional expression: Implications for intercultural communication (pp. 451-472). In P.A. Anderson, and L.K.Guerero (Eds). *Handbook of communication and emotion: Research, theory, applications, and contents* (pp. 451-472). San Diego: Academic Press.

Skinner, D., Correa, V. Skinner, M., & Bailey, D. (2001). The role of religion in the lives of Latino families of young children with developmental delays. *American Journal of Mental Retardation* , 106 *(4),297-313.*

Smart, J.F., & Smart, D.W. (1997). The racial/ethnic demography of disability. *Journal of Rehabilitation*, 63*(4)*, 9-15.

Smith, M. J. & Ryan, A.S. (1987) Chinese American Families of children with developmental disabilities. An exploratory study of reactions to service providers. *Mental Retardation*, 25, 345-350.

Smith, S.W. (2001). Involving parents in the IEP process. ERIC Digest E611.

Soriano, M. (1995). Latinos in rehabilitation: Implications for culturally appropriate counseling. *NARPPS Journal*, 19*(2)*, 67-72.

Special focus issue: A primer on IDEA 1997 and its regulations. (1999, April/May). CEC Today, 3.

Turney, K., & Kao, G. (2009). Barriers to school involvement: Are immigrant parents disadvantaged ? *The Journal of Educational Research,* 102 *(4)*, 257-271

Vyse, Stuart (2005). Where Do Fads Come From? In Jacobson, Foxx & Mulick. Controversial Therapies for Developmental Disabilities. *Fad, Fashion, and Science in Professional Practice*. Lawrence Erlbaum Associates. ISBN 0-8058-4192-X.

Weber, W. & Newmark, S. (2007). Complementary and alternative medical therapies for attention-deficit/hyperactivity disorder and autism. Pediatr Clin North Am 54 *(6)*: 983–1006.

Wong VC (2009). Use of complementary and alternative medicine (CAM) in autism spectrum disorder (ASD): comparison of Chinese and western culture (partA). *Journal of Autism Developmental Disorders* 39 *(3)*: 454 - 63.doi:10.1007/s10803-008-0644-9. PMID 18784992

Zhang, C. & Bennett, T. (2003). Facilitating the meaningful participation of culturally and linguistically diverse families in the IFSP and IEP process. *Focus on Autism and other Developmental Disabilities*, 18 (1), 51-59

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Ebooks: An Alternative to Paper Books for Online Students?

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Abstract. This program evaluation researched ebooks as a source of literature for students attending online schools. Students, parents, teachers, and administrators participated in focus groups, surveys, and interviews so as to determine the effectiveness of providing ebooks to online students. It was found that while students enjoyed browsing ebooks from their school-provided desktop computers, reading ebooks to completion was difficult to enjoy without a portable, digital reading device. Recommendations included providing tablets to allow ebook downloads and adopting an ereading pedagogy.

Keywords: e-learning; school libraries; digital readers; ebooks; low-income students

Introduction

A trip to a school library is an exciting part of the school week for many children. Elementary students often have a set time for their classes to meet with the school librarian, hear a highlighted story, and swap last week's book for a new one. Students may spend quiet time reading their books in class, or they may bring the books home to enjoy with their parents. While this school library model is likely familiar to many adults, a new lens must be created when considering students who attend full time online schools. Without a physical school to attend, how might students access quality children's literature? Might ebooks be an adequate substitute for this digital native demographic? Students attending online schools already have the necessary hardware, so adding an ebook platform could be a relatively low-cost solution to providing reading materials. This program evaluation examined the role and potential of ebooks in a public, online elementary school.

Online schools

In the 2013-2014 school year, 310,000 U.S. students across 29 states enrolled in full time online schools (International Association for K-12 Online Learning, 2013). Online education is among the trends in education that is seeing the most growth (Roblyer, 2008). Children of all economic classes are able to enroll, as public online schools must operate tuition-free and must offer students a computer and internet access (Rose & Blomeyer, 2007). Because of this

procurement, some online schools are even considered *high-poverty* schools (Ohio Department of Education, 2012a, 2012b).

The combination of low-income students attending school online exposes a critical gap in resources, as low-income children are often raised in homes with a limited about of literature, thus disadvantaging them educationally (Crowe, Connor, & Petscher, 2009; Hagans, 2008; Hixson & Mcglinchey, 2004; Popp, 2004). Common Core initiatives push more skill-based analyses of text, with an emphasis of using an equal amount of fiction as non-fiction material (Common Core State Standards Initiatives, 2012). School libraries can typically fill the void, allowing students to select books solely for pleasure reading (Hunter, 2004), but this typical model becomes outdated when considering online schools.

Free reading and access to literature

"Free voluntary reading" can be thought of as someone engaging with a book not because of an assignment, not because they have to, not because of a reward, but because the reader simply wants to read a book (Krashen, 2006, p. 43). Schools tend to call this sustained silent reading time, or SSR, and allow students to devote ten or fifteen minutes each day reading material of their choice. Assignments, grades, and reports typically are not tied into SSR time and little feedback is provided from the teacher (Krashen, 2006; White & Kim, 2008). So why bother having students read simply for fun, without skills explicitly integrated? According to Krashen, author and reading researcher, "Children become better readers by reading"(2006, p. 43). The more children read, the higher their reading achievement (Rasinski & Padak, 2011). In engaging in SSR time, students develop rich vocabularies, begin to comprehend at a higher level, and begin writing proficiently (Krashen, 2006; White & Kim, 2008).

In order for children to begin reading voluntarily, they must have access to high quality books (Hunter, 2004; Krashen, 2006). In most schools, access to literature is not an issue. Students typically have a litany of books from which to choose in both their classroom libraries as well as their school libraries. Access to literature is perhaps most important in schools in which a high percentage of the children come from impoverished families (Hunter, 2004). While the recipe for success may seem rather simple, Krashen (2006) reported that low-income children often have less or diminished access to literature. Children who attend high-poverty schools often have meager classroom and school libraries (Hunter, 2004; Krashen, 2006), and low-income neighborhoods tend to have libraries with limited operating hours (Krashen, 2006). Krashen appealed for high-poverty schools to make school libraries a priority stating, "For children of poverty, libraries are their only chance" (2006, p. 45). Hunter (2004), an international reading consultant, reasoned that libraries in classrooms support students to be the best readers they can. Through access to quality fiction and nonfiction books, students can increase their fluency and foster a love of reading.

Ebooks in education

During their free time, students are often watching a screen of some sort. Whether it is a television show, a movie at the local theater, a Nintendo DS, texting with friends, or checking for Facebook updates, screens are all around us.

It takes a very motivated student to turn off the screen and pick up a book instead. Teachers and researchers alike felt compelled to battle this discrepancy by turning to digital books, or ebooks, in the classroom so as to develop congruence with what students are naturally attracted to outside the classroom (Larson, 2009a).

In her article "ReKindling an interest in Reading with At-Risk Students," Engel-Unruh felt that "by giving the students a 'gadget' like the Kindle, [she] could spark their interest and get them to read in a format that gadget-centric teens could appreciate" (2010, p. 54). Through support from a grant, Engel-Unruh purchased eleven Kindles and a gift card for purchasing ebooks. It was her hope that her struggling, unmotivated high school students would find the pleasure in reading. She described her students as "aliterate." That is, they were able to read, they just chose not to read (2010, p. 54).

Engle-Unruh formed a Kindle Club at her high school. Beginning on the first Friday of the school year, students selected for the program learned how to use the Kindles, learned how to download books, and spent class time reading self-selected stories. Engle-Unruh reported that the students engaged in the Kindle Club began to read for pleasure, thoroughly enjoyed reading on Kindles, and sustained this enthusiasm for the duration of the school year. Self-reported student surveys showed a 12.1% increase in time spent reading, and a 31.2% increase in the number of books read throughout the school year.

Other researchers have reported similar success stories with elementary students. Larson (2009b), worked with fifth grade students in an effort to gauge their reading motivation and attitudes following reading on laptops. After reading award-winning literature available online, students in the qualitative study participated in asynchronous online message board discussions. Students read one of two books and posted personal feelings and thoughts on a discussion board. Larson commented that because the students were reading online, the transition to the discussion boards was seamless. A typical session consisted of 30 minutes of reading time and 15-20 minutes dedicated to the written response.

Along with high school students and middle school students, primary school students have also interacted with ebooks in novel ways. In a separate publication, Larson (2010) described a case study in which a teacher allowed two second-graders to read on Kindles. The teacher gave a brief lesson to her students regarding the use of a Kindle. She explained how to manipulate the text size, access the built-in dictionary, use the text-to-speech feature, and post notes. Students were encouraged to use the tools as they desired and were not required to use them at any time. On their own accord, one student added 43 personal notes and the other inserted 33 notes. Larson stated, "The note tool provided them with a literature-response mechanism that suited their individual needs and purposes as readers" (2010, p. 18). The teacher was able to use the notes as measures of comprehension as well as to provide "a unique glimpse into the minds of individual readers" (2010, p. 19).

Besides the use of the note tool, the students used the text-to-speech feature in clever ways. After learning of the feature, both girls decided to listen to a portion of the story for about ten minutes. After those ten minutes, the girls decided to read on their own because, in listening to the Kindle voice, one girl stated that "he just didn't sound the way the story reads in my head"(Larson, 2010, p. 20). Throughout the rest of the story, one student accessed the text-to-speech feature when encountering difficult passages.

While both girls in this case study were reading at or above grade level, the use of text-to-speech features on portable reading devices certainly holds promise for struggling readers. When reflecting on her Kindle Club, Engle-Unruh wrote that she found her at-risk high school students accessed this feature regularly, reporting that they often read while they listened. The built-in dictionary aided comprehension and the development of a rich vocabulary.

In concluding her article, Larson (2010) called for further research on the integration of ebooks in schools. She claimed, "Teachers must explore the potential of digital readers, as one device can potentially take the place of hundreds of printed books and allow for unique transactions between the reader and the text" (2010, p. 22). Concerning demographic populations, ebooks hold promise for readers with special needs due to the ability to individualize a book to suit the needs of the reader (Larson, 2010).

Digital reading devices

Ebooks may be read on dedicated devices, which are devices created solely for the purpose of reading ebooks, or on non-dedicated devices such as desktops, laptops, tablets, or smartphones (Zambarbieri & Carniglia, 2012). Larson (2012) conducted a study with preservice teachers to introduce ebooks as educational tools as well as to determine students' comfort with and perception of reading from different devices. Allowing students to select their reading device, but requiring the use of an ebook, Larson found that 53% of the preservice teachers indicated that digital reading supported their comprehension, 16% felt hindered by reading an ebook, and 31% reported neither being hindered nor helped by reading an ebook. Among the participants indicating that an ebook hindered the reading experience, one student reported that reading from a non-portable computer was inconvenient.

While ereaders appear to have an advantage for reading digital books, it is important to note that schools are *likely* to have desktop computers as technology already in place for ereading. Tablets and dedicated ereaders have only in the recent past been affordable for schools to integrate into their technology arsenal (Felvégi & Matthew, 2012).

Statement of the Problem

Students attending the school of focus were encouraged by teachers to read for pleasure in an effort to accelerate their reading growth. While parents and students were sympathetic to the teachers' plights, students reported not having

appropriate reading material in their homes. Local libraries were available to some families, while others reported a lack of transportation or excessive fees owed. To provide literature resources to students, teachers suggested students read ebooks; previously unchartered territory for students at this school.

Purpose of the Study

The intent of this study was to determine the effectiveness of supplying ebooks to students attending online schools to be read on their desktop computers. Students already access the majority of their schoolwork via the internet, thus have the infrastructure already in their homes to be able to read books online. The study aimed to discover if reading ebooks from a desktop platform allowed students to increase the amount of time spent reading books for pleasure.

Significance of the Study

Much research has commenced on the benefits of students reading digital books on mobile reading devices (tablets, laptops, and dedicated ereaders), however research is scarce regarding the potential for students to read via desktop machines. Over 300,000 students attend full-time online schools and therefore have technology at the ready to be able to read online. Online students of low-socioeconomic status may not have physical books available to them, but offering books online affords students the opportunity to read for pleasure when other avenues of accessing books have been closed.

Context

This program evaluation examined a Midwestern online school's inaugural year of instituting an ebook program, and focused on the elementary division of the school, specifically fifth grade. Over 15,500 students attended this school during the 2012-2013 school year, 75% of whom were classified as economically-disadvantaged.

The school purchased Follett Shelf, an online library of ebooks available to students on demand (Follett Corporation, 2009). More than 1,900 titles were purchased by the school and available to students. Because the school supplied desktop computers and internet connections, students simply clicked a link to access Follett Shelf. After providing login credentials, students were able to browse the collection of ebooks and were able to sort books by genre, subject, and reading level. If students decided they were interested in reading the book, they could read it on a temporary basis and return it to the *shelf* when they were finished, or they could check out the book. Students who checked out books had uninterrupted access for seven days.

Method

A program evaluation model was used so that stakeholders had an integral part in determining the benefits and challenges of supplying ebooks to online students. Students, parents, teachers, office staff, and administrators participated. All 258 fifth grade students and their parents were invited to complete a survey regarding their prior ebook reading habits. Thirty-six families agreed to participate, resulting in a 14% participation rate. Evoking an emergent

design, the researcher added student and parent interviews to fill in the knowledge gap, thereby using a multimodal approach to reach a 20% target. Stratified purposeful sampling was used based on class membership. Twelve families participated in the interview phase. Because of high transiency rates at this school, only 178 of the original 258 students remained at the school in the spring. By combining the data from the interviews with the survey responses, a total of 48 families participated, which, considering the amount of year-long students, yielded a response rate of 27%.

Eleven fifth grade language arts teachers were invited to participate. Nine agreed to attend three focus groups, spread evenly throughout the school year. A snowball sampling approach was used to recruit administrative participants. Participating administrators included: the elementary principal, a reading specialist, the director and assistant director of intervention, a curriculum specialist, and the school librarian. Three separate focus groups were held with administrative staff.

Follett Shelf usage reports were analyzed to determine patterns of fifth grade students' use. Available data included school wide usage as well as data parsed by grade level. The reports indicated the amount of books read online, the amount checked out, and the amount downloaded to a digital reading device. Comprehensive student reports were accessed to determine specific titles read and dates accessed.

The nature of this mixed methods study called for a variety of analysis techniques. Focus group and interview transcripts were coded using both a priori and inductive coding. Descriptive statistics, using SPSS, have been created on Follett Shelf records and student survey responses.

Results

Stakeholders agreed that reading ebooks on a desktop computer lacks the comfort of reading on a digital reader or of reading a book, thus affecting students' motivation to read books to completion.

Administrators, teachers, students, and parents all commented that it may not be feasible to expect that students would choose to read a book solely for pleasure on their desktop computers. In light of the fact that students at an online school are on their computers for a large portion of the school day, administrators and teachers agreed that breaks are needed from their desktop screens. Parents and teachers suggested providing portable digital readers, or tablets, for the students. The librarian mentioned that students ought to be taught how to download Follett Shelf books onto digital readers, as some families have these devices in their homes.

Figure 1, below, shows a breakdown of fifth graders' Follett Shelf usage from August of 2012, until April of 2013:

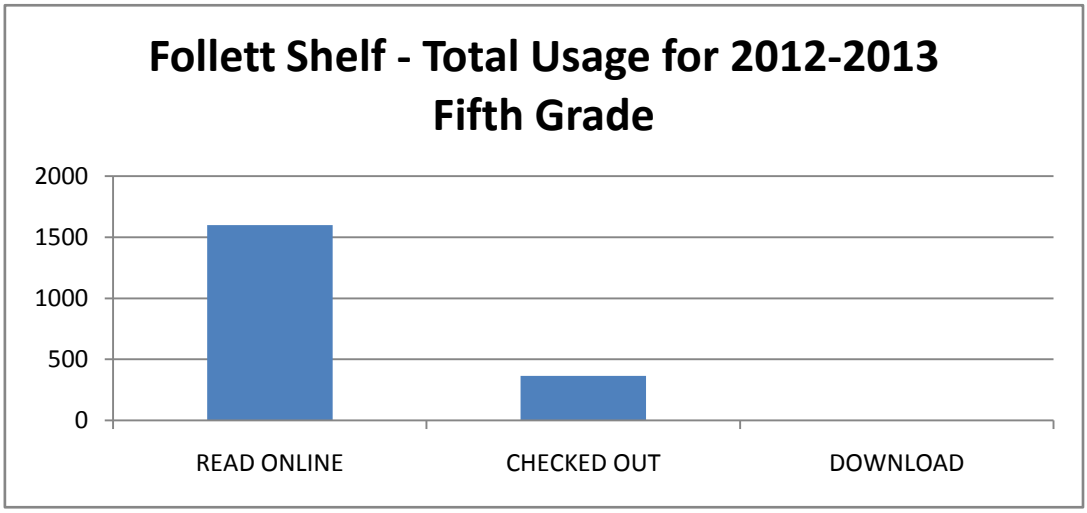

***Figure 1*. Follett Shelf usage statistics for fifth grade.**

As shown in Figure 1, fifth graders at this school read (or browsed) ebooks a total of 1,965 times from the beginning of the school year until the end of April. Among this total, 1,599 books were read online and 365 were checked out. Only one book was downloaded.

While the above data looks impressive at first glance, a deeper analysis of fifth grade students' ebook usage patterns was also conducted. The available data included an access log of all fifth grade students who have used the program. Included in the log is the student's name, the title of the book read, the date read, and whether the book was read online or checked out. In order to understand a particular student's usage, one must simply locate the student on an alphabetical list to see all ebooks read on Follett Shelf.

In tracking the majority of the students' usage, it appeared that students were doing more casual reading, or browsing, of ebooks rather than reading a book from beginning until end. Approximately 75% of the students appeared to read multiple titles in one sitting (many of which are lengthy chapter books), so it can be assumed that the books are being looked at, but not finished. For example, one student's log shows that *Catching Fire* and *Mockingjay* (both books in the *Hunger Games* series) were read on November 9, 2012. While many a reader has raved about these books and "not being able to put them down," it is doubtful that a fifth grader read them both on one day. The usage report available at the time did not detail time spent on each book or number of pages read. Students who *check out* a book on Follett Shelf will not show multiple logins under the same book, so it is possible that books that are checked out are also being read in their entirety. In order to ascertain the extent to which students were reading ebooks to completion, students were interviewed about this phenomenon.

Student interviews corroborated the fact that students were more likely to browse Follett Shelf, than read ebooks on their desktop computers. A boy said, "I think I read one book, then I thought it wasn't cool. I like to have a book in my

hand, sort of." He was asked if it was too hard to read on the computer and he replied, "It is kind of complicated to find the book that you read the day before. And turning the pages! It takes forever to turn pages!" Another boy was asked if he had trouble reading on the computer and he said that he sometimes "gets lost in the words." A girl agreed stating, "A lot of times I don't like looking at the screen a whole bunch. It hurts my eyes sometimes."

Among the four students who answered that they did not use Follett Shelf, one student stated "I prefer to read a physical book because it's easier for me. I mean, I *can* read online but I prefer a physical book." Another student said, "I don't like to sit at my computer more than I have to." A girl, when asked about reading on Follett Shelf, said, "I don't really read that much online. I like to sit on the couch to read [books]."

Parents agreed. In responding to an interview question regarding their child's use of Follett Shelf, one parent stated:

> For that Follett reading thing; if it was more like on a small screen, something you can carry around, she might be interested in it that way because she likes to relax in the evening and just read. But if she's on a computer, she's not relaxing.

Focus group data from both teachers and administrators echoed the discomfort prevalent in reading ebooks on desktop computers. One teacher responded that after a long day on her computer, she prefers to complete additional school work from a laptop away from her office. When asked if the pattern of students *browsing* books rather than reading them to completion was an issue, teachers felt any access was an important first step, but that the lack of in-depth reading was in need of remediation.

A question on the student and parent survey asked students the extent to which ebooks were read prior to access to Follett Shelf. It was shown that that among the non-economically-disadvantaged students, most (71%) were reading zero or few ebooks. Students who were economically-disadvantaged have turned to ebooks more frequently. Thirty-nine percent have read two-to-three ebooks prior to access to Follett Shelf, and 29% have read more than five ebooks. (The school provided access to ebooks to students for the previous school year using Tumblebooks. At the time, Tumblebooks offered primarily picture books geared to students in grades three and below.)

After having had access to Follett Shelf for the school year, survey questions asked students to report how many ebooks they read on Follett Shelf throughout the school year. Answer choices included: *0-1*, *2-3*, *4-5*, and *More than 5.* SPSS was used to differentiate responses between students classified as economically-disadvantaged and non-economically-disadvantaged. Low-income students selected *More than 5* and *2-3* an even amount of times (25% each). For students who were not from low-income families, a little over half selected *2-3* and the other half selected *More than 5*. In comparing spring ebook reading rates to the

baseline in the fall, low-income students' habits were similar, yet students not from low-income homes increased their rates of reading ebooks.

Discussion

In their study on increasing readers' stamina, Reis and Fogarty (2006) found that students read for longer durations when they had the ability to move around and choose where to read. Students at the school of study who elected to read an ebook on Follett Shelf primarily needed to access the books from their desktop computers. Data from administrators, teachers, parents, and students confirmed that reading via a desktop computer is uncomfortable, straining to the eyes, and makes for a long day for students who attend school online.

Portable reading devices may provide a solution to the problems incurred on reading on a stationary desktop computer. In a small study (N=9), it was found that mobile digital readers create no disadvantages when compared to reading printed books (Grzeschik, Kruppa, Marti, & Donner, 2011). In a slightly larger study of fifth grade students (N=20), researchers found no significant differences in reading speed or comprehension when using tablet digital readers versus reading text on paper (Dundar & Akcayir, 2012).

Benefits have been cited to using digital reading devices, specifically the ability to manipulate text size (Dundar & Akcayir, 2012). Additional advantages of digital reading devices include the ability to look up word meanings, the ability to activate a text to speech feature, and the ability to take digital notes while reading. While the above study mentioned no significant differences in reading speed or comprehension, the researchers did find a significantly positive relationship when studying students' opinions on portable digital readers. Students appreciated the ergonomics afforded by the digital devices and reported that reading books on them was enjoyable.

Blindly adopting ereading devices and distributing them to students without explicit instructions and guidance is unlikely to magically transform non-readers into readers. A "technology-empowered literacy pedagogy" is needed to aid students in their transition from physical books to ebooks (Felvégi & Matthew, 2012, p. 43). It is important for readers to understand how to operate both the hardware and the software in order to be successful ebook readers. Larson (2013) agreed that educators must adapt their literacy pedagogy to reflect the incorporation of ebooks. She stated that reading ebooks requires "varying levels of student interaction, reading skills, knowledge of language, and technology prowess" (p. 172).

Recommendations

Based on data from students, parents, teachers, and staff, it was suggested that the school in the study conduct a pilot program of distributing ereader tablets to online students. While the students expressed excitement in the on-demand feature of Follett books, students did not feel comfortable reading on desktop computers. It was found that reading literature for pleasure on desktop computers caused fatigue and difficulties that hampered reading motivation.

Assuming that ereader tablets became a reality, it is recommended that teachers take part in professional development to learn not only *how* to use the devices themselves, but also *how to teach students* to effectively utilize the ereader features. Teachers also must learn ways to motivate students to engage in pleasure reading, employing new strategies so that reading can be collaborative, stimulating, and enticing.

Recommendations for future research include the effect of supplying tablets to students attending an online school, specifically the use of the tablets to access ebooks. When students are able to access ebooks from the comfort of their couches, back yards, or in their beds at night, does reading motivation increase? Can ebooks on tablets be a viable alternative to paper books for online students? Might students come to prefer ebooks over physical books, once desktops are supplemented with tablets?

Conclusions

Follett Shelf has allowed students at this online school to access quality children's literature. While access is an important first step, this study has shown that students' comfort (both comfort with technology as well as physical comfort) is critical to creating a culture of readers. Students showed excitement by having access to a world of ebooks, as they frequently visited the site and clicked on titles. Students reported to their teachers that the on-demand access to popular literature was thrilling, but the fascination soon waned as the children became fidgety and edgy reading from a stationary computer screen. Students, parents, teachers, and administrators agreed that portable ereaders, such as tablets, would make ereading much more enjoyable.

With the advent of ebooks and ereaders, curricula need to reflect the novelty of these devices. Students and teachers need to work together to navigate the most appropriate ways to use this technology both in and out of the classroom. Besides just engaging in professional development sessions, teachers need to hold discussions with their students to understand *what works* in students' quests in reading for pleasure via ebooks. Just as the ereading devices available are varied, so too will be students' ereading habits and preferences. Only by keeping the discussion open and honest will students be able to *curl up with a good (e)book* and truly enjoy reading.

References

Crowe, E. C., Connor, C. M., & Petscher, Y. (2009). Examining the core: Relations among reading curricula, poverty, and first through third grade reading achievement. *Journal of School Psychology*, *47*(3), 187–214.

Dundar, H., & Akcayir, M. (2012). Tablet vs. Paper: The Effect on Learners' Reading Performance. *International Electronic Journal of Elementary Education*, *4*(3), 441–450.

Engel-Unruh, M. (2010). ReKindling an Interest in Reading with At-Risk Students. *Library Media Connection*, *29*(3), 54–56.

Felvégi, E., & Matthew, K. I. (2012). eBooks and Literacy in K–12 Schools. *Computers in the Schools*, *29*(1/2), 40–52. doi:10.1080/07380569.2012.651421

Follett Corporation. (2009). *Follett Shelf: eContent anywhere. Anytime* (Vol. 2013).
Grzeschik, K., Kruppa, Y., Marti, D., & Donner, P. (2011). Reading in 2110 – Reading behavior and reading devices: A case study. *Electronic Library*, *29*(3), 288–302.
Hagans, K. S. (2008). A Response-to-Intervention Approach to Decreasing Early Literacy Differences in First Graders From Different Socioeconomic Backgrounds. *Assessment for Effective Intervention*, *34*(1), 35–42.
Hixson, M. D., & Mcglinchey, M. T. (2004). The Relationship between Race, Income, and Oral Reading Fluency and Performance on Two Reading Comprehension Measures. *Journal Of Psychoeducational Assessment*, *22*(4), 351–364.
Hunter, P. C. (2004). Classroom Libraries Level the Playing Field. *Instructor (New York, N.Y.: 1999)*, *113*(5), 36–40, 71.
International Association for K-12 Online Learning. (2013). *Fast Facts About Online Learning*. iNACOL: International Association for K-12 Online Learning. Retrieved from http://www.inacol.org/cms/wp-content/uploads/2012/11/iNACOL_fastfacts_October_2012.pdf
Krashen, S. (2006). Free Reading. (Cover story). *School Library Journal*, *52*(9), 42–45.
Larson, L. C. (2009a). Digital Literacies: e-Reading and e-Responding: New Tools for the Next Generation of Readers. *Journal of Adolescent & Adult Literacy*, *53*(3), 255–258.
Larson, L. C. (2009b). Reader Response Meets New Literacies: Empowering Readers in Online Learning Communities. *Reading Teacher*, *62*(8), 638–648.
Larson, L. C. (2010). Digital Readers: The Next Chapter in E-Book Reading and Response. *The Reading Teacher*, *64*(1), 15–22.
Larson, L. C. (2012). It's Time to Turn the Digital Page: Preservice Teachers Explore E-Book Reading. *Journal of Adolescent & Adult Literacy*, *56*(4), 280–290. doi:10.1002/JAAL.00141
Larson, L. C. (2013). From Print Texts to e-Books: The Changing Nature of Literacy. *Kappa Delta Pi Record*, *49*(4), 168–173. doi:10.1080/00228958.2013.845505
Ohio Department of Education. (2012a). *Electronic Classroom of Tomorrow 2011-2012 School Year Report Card*. Ohio Department of Education. Retrieved from http://www.ode.state.oh.us/reportcardfiles/2011-2012/BUILD/133413.pdf
Ohio Department of Education. (2012b). *Virtual Community School of Ohio 2011-2012 School Year Report Card*. Ohio Department of Education. Retrieved from http://www.ode.state.oh.us/reportcardfiles/2011-2012/BUILD/143537.pdf
Popp, P. A. (2004). *Reading on the Go! Students Who Are Highly Mobile and Reading Instruction*. National Center for Homeless Education. Retrieved from http://www.eric.ed.gov/PDFS/ED489999.pdf
Rasinski, T. V., & Padak, N. (2011). Who Wants to Be a (Reading) Millionaire? *The Reading Teacher*, *64*(7), 553–555.
Reis, S. M., & Fogarty, E. A. (2006). Savoring Reading Schoolwide. *Educational Leadership*, *64*(2), 32–36.
Roblyer, M. D. (2008). Virtual Schools: Redefining "A Place Called School." In J. Voogt & G. Knezek (Eds.), (Vol. 20, pp. 695–711). Springer International Handbooks of Education.
Rose, R., & Blomeyer, R. (2007). *Access and Equity in Online Classes and Virtual Schools*. NACOL: North American Council for Online Learning. Retrieved from http://www.inacol.org/cms/wp-content/uploads/2012/11/iNACOL_AccessEquity_2007.pdf
White, T. G., & Kim, J. S. (2008). Teacher and Parent Scaffolding of Voluntary Summer Reading. *The Reading Teacher*, *62*(2), 116–125.
Zambarbieri, D., & Carniglia, E. (2012). Eye movement analysis of reading from computer displays, eReaders and printed books. *Ophthalmic and Physiological Optics*, *32*(5), 390–396.

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Investigation of Research on Exclusion Policy

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Abstract. Universities exclude a large number of students into our society. However, there is little research on these students after they have left universities. This study is an effort to fill the vacancy with two objectives. First objective is to recommend interdisciplinary research among three streams of research: exclusion in primary and secondary education, exclusion in higher education, and social exclusion. Second objective is to bring a better understanding of excluded students through analyzing SAT and high school GPA scores. This study performed a descriptive analysis of 5364 excluded students and 16508 graduated students. The first finding of this study revealed that the majority (68.36%) of excluded students have an SAT score of 901 – 1100. The finding raised the questions for future studies. Why are we failing more students with SAT scores between 901-1100? What are the distinguished characteristics of these students contribute to academic failure? What can we do about it? The second finding shows that 43.12% of all excluded students have a high school GPA of 2.75 - 4.00. These students were relatively successful in high school, but failed terribly in college. According to Tinto's integration theory, retention rate is determined by how well students integrated into school environment socially and academically (Tinto & Cullen, 1973; Wolniak, Mayhew, & Engberg, 2012). The future studies on this group of students will be valuable in understanding the transition process from high school to college.

Keywords: academic policy; exclusion; higher education; mental health

1. Introduction

The idea of academic exclusion in higher education is to have students sit out, evaluate their academic difficulties, sort out personal problems, take steps to make corrections, return to school ready and motivated to achieve graduation. This objective is contradicted by the fact that only 12% of excluded students eventually graduated (Howard, Borland, Johnson, & Baker, 2001). Academic exclusion policy was discredited for protecting academic quality based on single measurement – grade point average (GPA), leaving students to their own means to rectify academic dilemmas, and failing to enhance students' progress from exclusion toward graduation (Howard et al., 2001).

In the following sections, we review three streams of research to bring interdisciplinary approach into exclusion research. We analyze SAT and high school GPA scores of excluded students and define a target group of subjects for future exclusion research.

2. Literature Review

2.1 Academic Exclusion Policies

Exclusion or expulsion in primary and secondary education is one of the most common disciplinary measures for dealing with problem behaviors. The research indicates that despite its frequent use, exclusion is not effective on modifying problem behaviors (Bock, Tapscott, & Savner, 1998). Exclusion is associated with high dropout rates (DeRidder, 1990). Evidence suggests that exclusion may accelerate students' progress on a path toward delinquency. Almost 95 percent of youth serving time in correctional institutions have been expelled from school (Spencer, 1998).

In primary and secondary education, an exclusion is up to ten school days. Expulsions can be between 80 school days and one year ("Students & Schools", n.d.). Since all 50 states in the United States have extended the right to a public education to individuals within a certain age range, the states cannot take the right away without a due process of notice and a hearing. Students who are expelled from primary and secondary schools typically are forced to attend class at an alternate location.

In higher education, exclusion policies vary among universities. Brawner and others surveyed the academic policies of nine American universities and revealed a wide range of variation among academic policies. Even within the same university, academic policies change over time (Brawner, Frillman, & Ohland, 2010). In higher education, the exclusion period varies from one semester to several years. Since higher education is a privilege and not a right protected by the US constitution, due process is not required for exclusion. An exclusion decision is based on GPA. A student is allowed no more than one approved appeal by the Academic Standing Committee or Dean of his/her college (Academic Standing Policy, n.d.). For an example of Georgia Southern University (GSU), the academic policy categorizes students with the following academic standings:

- Good Standing
- Warning 1
- Probation 1
- Exclusion 1: 1-year exclusion
- Warning 2
- Probation 2
- Exclusion 2: 5-year exclusion

Students with a GPA below 2.0 are placed on warning. Students failing to raise their GPA above 2.0 during a warning period are placed on probation. Students failing to raise their GPA above 2.0 during a probation period are given

exclusions. The first exclusion is one year and second exclusion is five years (Academic Standing Policy, n.d.).

2.2 What kind of students are being excluded

In primary and secondary education, excluded or expelled students possess undesirable behaviors that threaten the safety of others, damage properties, or disrupt educational instruction (Haynes, 2005). A survey shows that the composition of expelled students is 50% for physical violence, 19% for disruption, 4% for verbal abuse, 4% for threating with a weapon, 4% for self-harm, and 19% for others. 88% of expelled students were male and 12% were female (Gross & Mcchrystal, 2001).

In higher education, a study shows that 17% of enrolled students were excluded at some time during their university attendance. 68% excluded are male and 32% are female (Wisconsin University, 1973). In most cases, less than 2.0 GPA is the key identifier for exclusion in higher education.

2.3 Factors associated with academic failure

Academic failure may be a result of self-withdraw from a college or a result of a forced exclusion. Numerous studies searched for the factors associated with academic failure (Hanushek, 1996; Kinshuk & McNab, 2006; McKenzie & Schweitzer, 2001). The factors identified are ranging from individual factors to social factors. Student's cognitive style, anxiety, and loneliness were examined in relation to academic failure (McKenzie & Schweitzer, 2001; Ross, Drysdale, & Schulz, 2001). Instructors' behavior, teaching methods, subject matter, and student-teacher interaction were related to academic performance (Aysan, Tanrıöğen, & Tanrıöğen, 1996; Mayer & Patriarca, 2007). Family demographic characteristics were observed to have impact on academic performance (Demeulemeester & Rochat, 1995; McKenzie & Schweitzer, 2001). A "socio-cultural" learning environment was found to have influence on performance of African American students, especially female African American students (Aysan et al., 1996; Seay, 2004).

Out of all these factors, SAT score and high school GPA are the two most observed influential factors which have been confirmed to have strong correlation with academic performance (Howard et al., 2001; Hudson, 1989; Noble & Sawyer, 2002). This study analyzes SAT and high school GPA scores of excluded students and defines a target group of subjects for future exclusion research.

2.4 Research subjects – students on probation versus students on exclusion

Universities exclude a large number of students into our society. As participation in higher education increased from 12 million enrollment in 1980 to 21 million in 2010, the number of excluded students is increasing respectively ("Higher Education", 2013). Despite the large number of excluded students, there is little research about these students after they have been excluded and left universities.

In previous research projects, freshmen and students on probation were frequently used as research subjects to identify factors associated with academic failure (Aysan et al., 1996; Demeulemeester & Rochat, 1995) or to evaluate prevention programs (Brotherton, 2001; Kadar, 2001; Raymondo, 2003). Understandably, it was convenient to sample and survey students while they were enrolled. However, we may have missed the target by surveying enrolled students instead of excluded students. Moreover, investigating and understanding the life after exclusion has never been on research agenda.

2.5 Social exclusion

Social exclusion is defined as the process in which individuals or entire communities of people are systematically blocked from rights, opportunities and resources (e.g. housing, employment, healthcare, civic engagement, democratic participation and due process) that are normally available to members of society (Social exclusion, 2014; Berry, Gerry, Hayward, & Chandler, 2010). Social exclusion is tied with various social, economic, legal, and health issues (Blyth & Milner, 1994). One type of exclusion extensively investigated is unemployment. Gallie and others described a vicious circle in which unemployment heightens social isolation which in turn creates financial deprivation and psychological distress which further diminishes the chance of employment (Gallie, 1999; Gallie, Paugam, & Jacobs, 2003). Studies in sociology also claim that social exclusion is closely related to mental problems (Berry et al., 2010; Parker & Ford, 2013; Specht, 2013; Wright, & Stickley, 2012).

The situation of being fired from a job shares many parallels with the situation of being excluded from a college where a person has to face the failure as well as the exclusion from a community. Thus, research issues in social exclusion can be brought into research of exclusion in higher education.

3. Objectives of This Study

There are two objectives of this research. First, this study recognizes the value of interdisciplinary research and proposes to borrow research ideas from the fields of sociology, primary and secondary education into the field of higher education. Secondly, this study brings a better understanding of excluded students by analyzing SAT and high school GPA scores. Based on the analysis, this study proposes using a target group of excluded students as research subjects for future exclusion research.

4. Data

Student records are obtained from Georgia Southern University database and grouped into two groups: (1) exclusion group where all students received at least one exclusion during 2000-2014, and (2) graduated groups where all students received at least one degree during 1983-2014. After the data were extracted and formulated into the groups, the following records were removed from each group.

1. Removed all students who do not have SAT scores.
2. Removed all students who do not have high school GPA scores.

3. Removed all students in graduate or post graduate programs.
4. Removed all students in undergraduate transfer programs of Georgia Institute of Technology.

Table 1: General Description of Each Group

Group Name	Number of records	Male	Female
Exclusion	5364	3465	1899
Graduated	16508	7669	8838

5. Results

5.1 SAT scores

Figure 1 and Table 2 revealed an interesting fact. There are seven intervals in the frequency distribution histogram. In 901-1000 and 1001-1100 intervals, exclusion group has higher probability distribution of (35.25% and 33.11%) than graduated group (28.98% and 32.75%). This phenomenon raises two important issues. First, students with SAT scores 901-1100 have higher probability to fail academically compared with students in graduated group. Secondly, students with SAT scores of 901-1100 accounted for over 68.36% of all excluded students. If we target our research on this group and find a way to help 68.36% of excluded students, we may efficiently and effectively increase our retention rate.

In the existing literature, many researchers have found significant relationship between academic performance and SAT scores (Howard et al., 2001; Hudson, 1989; Noble & Sawyer, 2002). To progress our research based on the existing research, we can hold SAT score as a constant by targeting our research on the students with SAT scores of 901-1100 and looking for other influential factors which contributed to academic failure. We can ask the following questions in future studies:

1. What are the distinguished characteristics of these students?
2. Do any of these distinguished characteristics contribute to academic failure?
3. Why are we failing more students with SAT scores between 901-1100?
4. What can we do to tailor our course design and teaching method for these students?

Table 2: SAT comparison between exclusion group and graduated group

	Graduated		Excluded	
Intervals	Frequency	Probability	Frequency	Probability
0-800	431	2.61%	178	3.32%
801-900	1718	10.41%	633	11.80%
901-1000	4784	28.98%	1891	35.25%
1001-1100	5407	32.75%	1776	33.11%
1101-1200	2759	16.71%	653	12.17%
1201-1300	1100	6.66%	187	3.49%
>1300	309	1.87%	46	0.86%
Total	16508		5364	

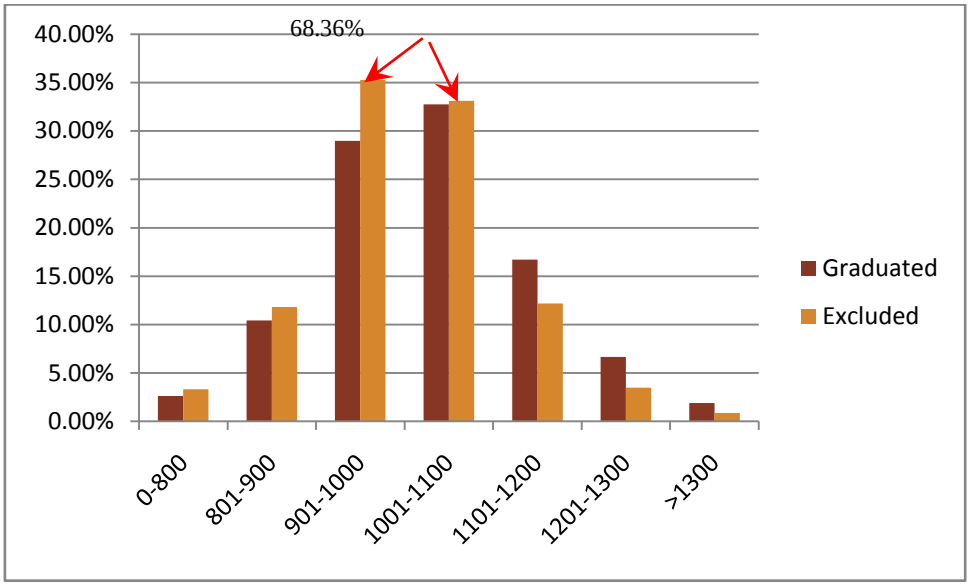

Figure 1: SAT comparison between exclusion group and graduated group

5.2 High school GPA

Frequency distribution for excluded group in Figure 2 shows a linear function between high school GPA and probability of being excluded. However, the frequency distribution for the graduated group is a normal distribution. For exclusion group, the high school GPA is correlated negatively with probability of being excluded, i.e. the higher high school GPA, the lower probability of being excluded. This result validates previous research where high school GPA was used to predict academic failure (Howard et al., 2001; Hudson, 1989; Noble & Sawyer, 2002). However, high school GPA is not correlated with probability of graduation because its frequency distribution is a normal distribution, thus high school GPA shall not be used to predict academic success in term of graduation.

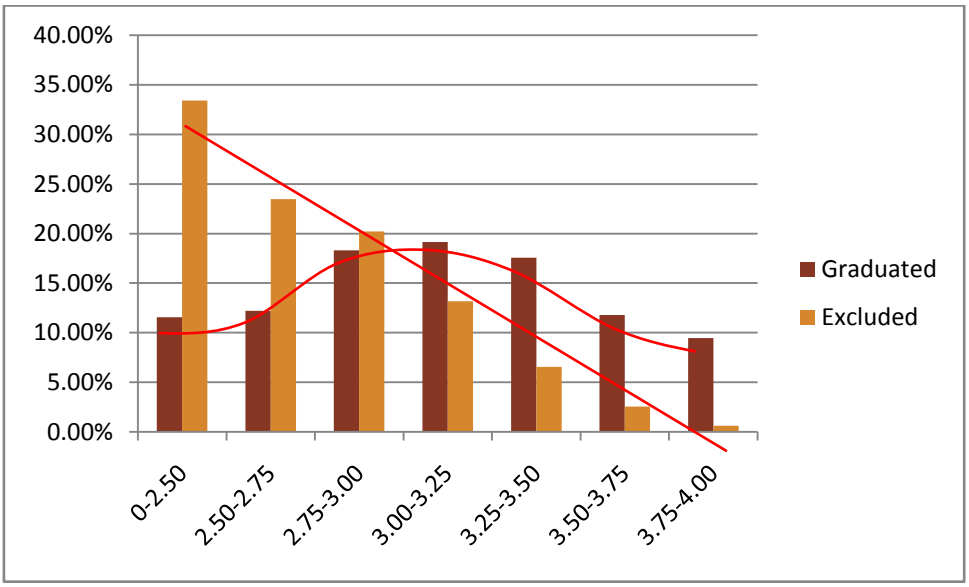

Figure 2: High school GPA comparison between exclusion group and graduated group

Table 3: High school GPA comparison between exclusion group and graduated group

Intervals	Graduated Frequency	Graduated	Excluded Frequency	Excluded	Cumulated %
3.75-4.00	1561	9.46%	33	0.62%	0.62%
3.50-3.75	1947	11.79%	137	2.55%	3.17%
3.25-3.50	2897	17.55%	352	6.56%	9.73%
3.00-3.25	3162	19.15%	707	13.18%	22.91%
2.75-3.00	3020	18.29%	1084	20.21%	43.12%
2.50-2.75	2012	12.19%	1259	23.47%	66.59%
0-2.50	1909	11.56%	1792	33.41%	100.00%
Total	16508		5364		

From the frequency distribution data in Table 3, we can see that over 43.12% of excluded students have a 2.75-4.00 high school GPA. These students were relatively successful in high school, but failed terribly in college. Vince Tinto proposed an integration theory to explain college dropouts. He claimed that academic success is determined by successful transition to a new environment. The transition consists of two separate integration processes – integration into social environment and integration into academic environment (Pascarella & Terenzini, 1983; Tinto & Cullen, 1973; Wolniak et al., 2012). Transition research on this group of students with 2.75-4.0 high school GPA will be valuable in understanding the transition process and identifying influential factors. In future transition research, questionnaires should be sent to this group of students instead of a random sample of students. The questions regarding the transition process of these students are:

1. What are key differences between college and high school that trigger the failure?
2. What are the difficulties for these students to transit from high school to college?
3. What are the difficulties for these students to integrate into social and academic environments?
4. What can we do to facilitate the transition and integration processes?

6. Discussion

6.1 Interdisciplinary research: research ideas from primary and secondary education

What happened to the excluded students? Did they transfer to other schools? Did they give up college and start working? Did exclusion lead them to change their attitude and behaviors? We simply do not know. There is little published research on students who were excluded from universities. However, in the field of primary and secondary education, the impact of exclusion policy on excluded students was investigated and the result indicated that exclusion has little effect on modifying undesirable behaviors (Bock et al., 1998). Exclusion is observed to be associated with high dropout rates and may cause students to go down the path toward delinquency (DeRidder, 1990). These research strategies can transcend the scope of primary and secondary education into higher

education. Similar research can be conducted in the field of higher education by posting the following questions:

1. What is the effect of exclusion on college students?
2. Are there any behavioral changes due to exclusion?
3. What are paths taken by excluded college student?
4. What is the percentage of excluded students who transferred to other colleges?
5. What is the percentage of excluded students who gave up on college education and started working?
6. What is the percentage of excluded students who are stuck and have no plan?

6.2 Interdisciplinary research: research ideas from sociology

Research in sociology established a sequence of reaction from unemployment to social isolation, to poverty, to mental problems, and back to long-term employment. Unemployment may create a vicious downward spiral of destruction of human lives (Gallie, 1999; Gallie et al., 2003). Similar to unemployment, excluded students separate from their community, lose financial aid, and face the rejection alone. Being "NEET" (not in employment, education or training) presents a major risk for young people of becoming socially excluded (Yates & Payne, 2006). Studies have shown that social exclusion is closely related to mental problems (Berry et al., 2010; Parker & Ford, 2013; Specht, 2013; Wright, & Stickley, 2012). Research on social exclusion can be brought into research of exclusion in higher education. To assess the consequence of exclusion, we can ask the following questions:

1. Are excluded students isolated after exclusion?
2. What kind of support systems do excluded students depend on?
3. Is it necessary for universities to be connected with excluded students?
4. Does exclusion put students at the risk of mental illness?

6.3 Research targets a special group

State governments used to fund universities based on enrollment. Recently, 25 states implemented a policy to probate funds based on performance indicators such as time to degree and the number of degrees awarded (Performance-Based Funding, 2014). Starting in 2016, the State of Georgia will fund its universities based graduation rates instead of enrollment (Diamond, 2012).

Universities worldwide invested tremendous amounts of resources to retain students, such as peer mentoring and faculty/student mentoring programs (Terrion & Leonard, 2007; Brotherton, 2001), curriculum development (Taylor, 2005), one-on-one counseling (Kadar, 2001), intrusive advising (Erwin, 1997), freshman workshops or seminars (Raymondo, 2003), special course for students on probation (Royal & Tabor, 2008). However, these intervention programs are designed for freshmen or at risk students in general. This study recommends using excluded students as research subjects instead of freshmen or students on probation. To be specific, future research should target 68.36% of excluded students who have SAT scores of 901-1100 and 43.12% of excluded students who

have a 2.75-4.00 high school GPA. Once we find out what makes these students tick, then we can increase retention rates in a more efficient and effective way.

7. Conclusion

At Georgia Southern University, 8783 students were given exclusion since 2000, about 20% of freshmen left school at the end of the first year, and less than half of freshmen eventually graduate. The financial costs to individuals, states, and the federal government are tremendous (Grumke, 2011). The intangible costs to the students' lives are immeasurable (Damast, 2012). Previous research was limited to the research on freshmen and probation students. The vacancy of research on excluded students needs to be addressed. To expedite the research in this field, this study promotes interdisciplinary research and transcends research ideas from primary and secondary education, sociology, mental health into research of exclusion in higher education. This study also provides a set of research questions and research subjects. Due to our limited resources and time, this study is a primary investigation of research on exclusion. Our desire is to get other people on board to solve the problem facing our universities, i.e. to increase graduation rates.

References

Academic Standing Policy. (n.d.). Retrieved from Georgia Southern University website at https://docs.google.com/a/georgiasouthern.edu/file/d/0BxNAGJ9mw9c3Y080d1ZnV3hzRDA/edit

Aysan, F., Tanriögen, G., & Tanriögen, A. (1996). Perceived causes of academic failure among the students at the faculty of education at Buca. U. S. Department of Education. (ERIC Document Reproduction Service No. ED406326)

Berry, C., Gerry, L., Hayward, M., & Chandler, R. (2010). Expectations and illusions: a position paper on the relationship between mental health practitioners and social exclusion. *Journal of Psychiatric and Mental Health Nursing*, 17(5), 411-421.

Blyth, E., & Milner, J. (1994). Exclusion from school and victim-blaming. *Oxford Review of Education*, 20(3), 293-306.

Bock, S. J., Tapscott, K. E., & Savner, J. L. (1998). Suspension and expulsion: effective management for students? *Intervention in School and Clinic*, 34(1), 50-52.

Brawner, C. E., Frillman, S. A., & Ohland, M. W. (2010). A Comparison of Nine Universities' Academic Policies from 1988 to 2005. Research report, ED508293, 42 pages.

Brotherton, P. (2001). It takes a campus to graduate a student: a look at seven academic retention programs and what makes them effective. *Black Issues in Higher Education*, 18(18), 34-42.

Damast, A. (2012). "Buried in Debt, and No Degree to Show for It." *Bloomberg BusinessWeek*, 4276, 50-52.

Demeulemeester, J., & Rochat, D. (1995). Impact of individual characteristics and sociocultural environment on academic success. *International Advances in Economic Research*, 1(3), 278-288.

DeRidder, L. M. (1990). The impact of school suspensions and expulsions on dropping out. *Educational Horizons*, 68, 153-157.

Diamond, L. (Dec. 12, 2012). Georgia college funding to focus on graduation, not enrollment. Retrieved from The Atlanta Journal Constitution website: http://www.ajc.com/news/news/local/georgia-college-funding-to-focus-on-graduation-not/nTTYY/

Erwin, J. (1997). An intrusive, comprehensive advising and career planning system: Eastern Michigan University. *New Directions for Institutional Research*, 94, 89-95.

Gallie, D. (1999). Unemployment and social exclusion in the European Union. *European Societies*, 1(2), 139-167.

Gallie, D., Paugam, S., & Jacobs, S. (2003). Unemployment, poverty and social isolation: Is there a vicious circle of social exclusion?. *European Societies*, 5(1), 1-32.

Gross, J., & Mcchrystal, M. (2001). The protection of a statement? Permanent exclusions and the SEN code of practice. *Educational Psychology in Practice*, 17(4), 347-359.

Grumke, K. (2011). "Study shows college drop outs cost nation millions." *Maneater*, Retrieved from http://www.themaneater.com/stories/2011/8/26/study-shows-college-drop-outs-cost-nation-millions/.

Hanushek, E. (1996). A more complete picture of school resource policies. *Review of Educational Research*, 66(3), 397-409.

Haynes, B. (2005). The paradox of the excluded child. *Educational Philosophy and Theory*, 37(3), 333-341.

Higher Education—Institutions and Enrollment 1980 to 2009. (n.d.). Retrieved July 21, 2013 from United States Census Bureau website at http://www.census.gov/compendia/statab/2012/tables/12s0278.pdf

Howard, R. D., Borland, K., Johnson, C., & Baker, L. J. (2001). Academic Success of Suspended Students. Paper presented at the Annual Meeting of the Association for Institutional Research, June 3-6, Long Beach, CA.

Hudson, J. B. (1989). An Analysis of ACT Scores, Placement Tests, and Academic Performance in Reading, English, and Mathematics Courses (Report:ED334916). University of Louisville KY. Retrieved from http://files.eric.ed.gov/fulltext/ED334916.pdf

Kadar, R. (2001). A counseling liaison model of academic advising. *Journal of College Counseling*, 4(2), 174-178.

Kinshuk, T., & McNab, P. (2006). Cognitive trait modeling: the case of inductive reasoning ability. *Innovations in Education and Teaching International*, 43(2), 151-161.

Mayer, M. J. & Patriarca, L. A. (2007). Behavioral scripts and instructional procedures for students with learning and behavioral problems. *Preventing School Failure*, 52(1), 3-12.

McKenzie, K., & Schweitzer, R. (2001). Who succeeds at university? Factors predicting academic performance in first year Australian university students. *Higher Education Research and Development,* 20(1), 21-33.

Noble, J., & Sawyer, R. (2002). *Predicting different levels of academic success in college using high school GPA and ACT composite score*. Iowa City, Iowa: ACT, Inc.

Parker, C., & Ford, T. (2013). Editorial Perspective: School exclusion is a mental health issue. *Journal of Child Psychology and Psychiatry*, 54(12), 1366-1368.

Pascarella, E. & Terenzini, P. (1983). Predicting voluntary freshman year persistence/withdrawal behavior in a residential university: A path analytic validation of Tinto's model. *Journal of Educational Psychology*, 75(2), 215-226.

Performance-Based Funding for Higher Education. (Mar. 5, 2914). Retrieved from National Conference of State Legislatures website: http://www.ncsl.org/research/education/performance-funding.aspx

Raymondo, J. C. (2003). The Effects of an abbreviated freshman year seminar program on student retention and student academic performance. *Research for Educational Reform*, 8(2), 46-55.

Ross, J., Drysdale, M., & Schulz, R. (2001). Cognitive learning styles and academic performance in two postsecondary computer application courses. *Journal of Research on Computing in Education*, 33(4), 400-412.

Royal, K. D., & Tabor, A. J. (2008). Theories of Student Success: Evaluating the Effectiveness of an Intervention Strategy. Paper presented at the Mid-Western

Educational Research Association's Annual Conference (Columbus, OH, 2008). (ED506514)

Seay, C. (2004). Using a "socio-cultural" approach in teaching information technology to African American students with academic difficulties. *Journal of Information Technology Education*, 3, 83-102.

Social exclusion. (n.d.). In Wikipedia. Retrieved May 26, 2014, from http://en.wikipedia.org/wiki/Social_exclusion

Specht, J. A. (2013). Mental Health in Schools: Lessons Learned From Exclusion. Canadian Journal of School Psychology, 28(1), 43-55.

Spencer, D. (December 11 1998). The excluded progress to crime. *Times Educational Supplement, Issue* 4302, p2-2.

Students & Schools: School Discipline - Suspension and Expulsion. (n.d.). Retrieved from Ohio Legal Services website: http://www.ohiolegalservices.org/public/legal_problem/students-schools/discipline-suspension-or-expulsion/qandact_view

Taylor, R. (2005). Creating a connection: tackling student attrition through curriculum development. *Journal of Further & Higher Education*, 29(4) 367-374.

Terrion, J. & Leonard, D. (2007). A taxonomy of the characteristics of student peer mentors in higher education: findings from a literature. *Mentoring & Tutoring: Partnership in Learning*, 15(2), 149-164.

Tinto, V. & Cullen, J. (1973). *Dropout in Higher Education: A Review and Theoretical Synthesis of Recent Research.* New York: Columbia University Teachers College.

Wisconsin University-Stevens Point. Office of Institutional Research, (1973). The Earmarks of College Success: A Causal-Comparative Study.

Wolniak, G., Mayhew, M., & Engberg, M. (2012). Learning's weak link to persistence. *Journal of Higher Education*, 83(6), 795-823.

Wright, N., & Stickley, T. (2012). Concepts of social inclusion, exclusion and mental health: a review of the international literature. *Journal of Psychiatric and Mental Health Nursing*, 20(1), 71-81.

Yates, S., & Payne, M. (2006). Not so NEET? A critique of the use of 'NEET' in setting targets for interventions with young people. *Journal of Youth Studies*, 9(3), 329-344.

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Evaluation of First Year Experience Program at Georgia Southern University

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Abstract. To increase the retention rate, Georgia Southern University launched the First-Year Experience (FYE) program. FYE is a comprehensive program which includes two mandatory courses (FYE 1220: First-Year Seminar, and FYE 1410: Global Citizens), conversations with professors, intrusive academic advising, giving early alert/midterm grades, and limiting number of withdrawals. The two mandatory courses have been offered since fall 2008. This study is to assess the impact of the two mandatory courses on academic performance of students majoring in information technology (IT). A comparison is made among the two mandatory courses, two general education courses (English and Math), and two information technology courses. Grade point averages (GPA) and the grades of six courses were extracted from the university data warehouse. Pearson correlation is used to detect the dependence between course grades and GPA. The result shows that the two mandatory courses have higher correlations with GPA than the other courses do. The two IT courses have higher correlations with GPA than the two general education courses do. The first course FYE 1220 is designed with a purpose of facilitating students integrated into academic environment, and the second course FYE 1410 is designed with emphasis of social integration. The result of the strong correlations validated Tinto's integration theory, i.e., academic integration and social integration leads to the academic success.

Keywords: retention rate; academic performance; social integration; academic integration; college courses

1. Introduction

At Georgia Southern University, about 20% of freshmen left school at the end of the first year, and less than half eventually graduate. The financial costs of college dropout to individuals, states, and the federal government are tremendous (Grumke, 2011). The intangible costs to the students' lives are immeasurable (Damast, 2012). Universities worldwide invested enormous amount of effort in implementing prevention programs, such as peer mentoring (Terrion & Leonard, 2007), curriculum development (Taylor, 2005), one-on-one counseling (Kadar, 2001), intrusive advising (Erwin, 1997), workshops or seminars (Raymondo, 2003).

2. Previous Research on Academic Success

The phrases of dropout rate and retention rate are frequently used interchangeably. Academic success or failure is another term related to dropout and retention. Academic success is measured in term of GPA in many studies (Pascarella & Terenzini, 1983; Okun, Benin, & Brandt-Williams, 1996). As a dependent variable, dropout rate, retention rate, academic success or academic failure share similar relationships with independent variables (Marsh, 1984; Aysan, Tanrıöğen, & Tanrıöğen, 1996; Connolly & McGrail, 1978). For example, numerous studies broadly investigated the characteristics of student personal and family background as the influential factors for academic success or failure.

Such characteristics include race, gender, high school performance, parents' income and education (Pascarella & Terenzini, 1983; Stage & Hossler, 1989). Behavioral scientists drilled down to the cause of academic success and contributed the cause to students' educational expectations, intention, and level of commitment (Okun et al., 1996). Organizational perspective draws from the literature on organizations and focuses on characteristics such structural and functional of institution, school's mission and size, student values, and career attainment. Bradford and Garris' study based on the student-institution fit model and found that private institutions had higher degree attainment rates than public institutions (Bradford & Garris, 1991).

The current study is based on the integration theory that claims students' academic success depends on the degree of their successful integration into the academic and social environments of the institution.

3. Integration Theory - Theoretical Framework of This Research

Lead by Vince Tinto, researchers claim that retention rate is determined by how well students integrated into school environment socially and academically (Wolniak, Mayhew, & Engberg, 2012; Tinto & Cullen, 1973, Pascarella & Terenzini, 1983). Figure 1 is Tinto's integration model. The evidence from many empirical studies supported the integration theory (Pascarella & Terenzini, 1983; Caisson, 2007).

Our theoretical framework is based on Tinto's integration theory. This study proposes that two mandatory courses facilitate social and academic integration of students into school and community, and ultimately deliver positively impact on academic performance. Figure 2 illustrates the proposed framework.

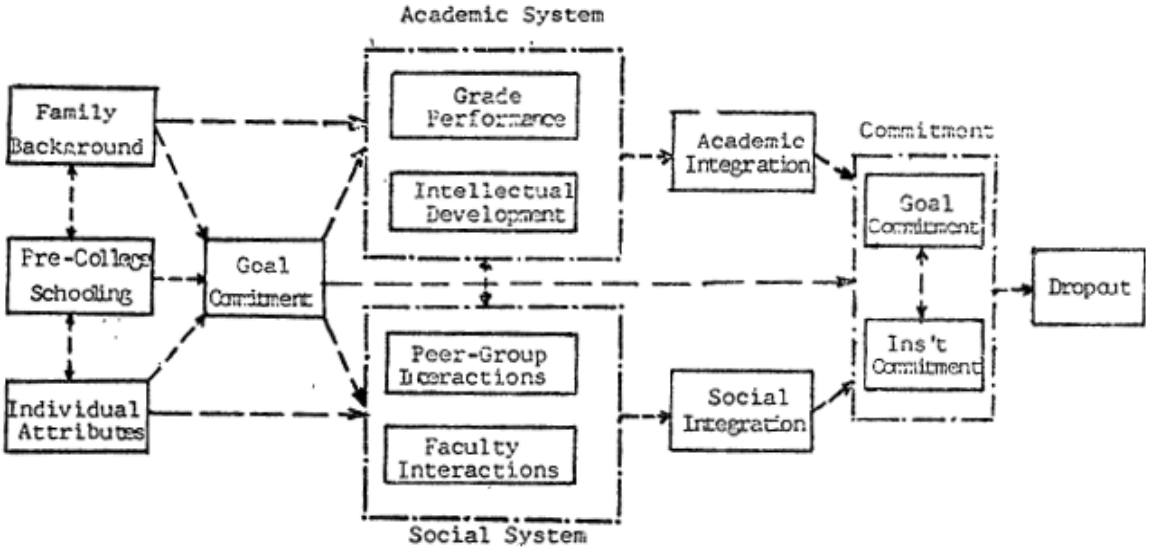

Figure 1: A Conceptual Schema of the College Dropout Process
Source: Tinto & Cullen, 1973:42.

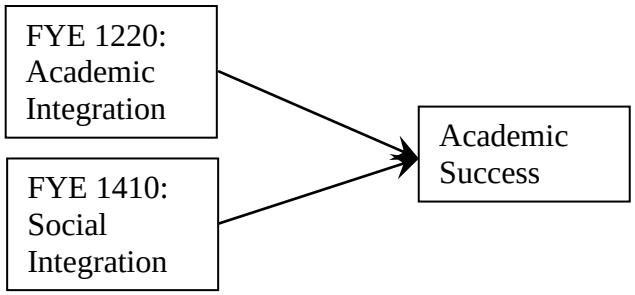

Figure 2: Theoretical Framework of This Study

4. Two Courses Focus on Integration

In an effort to increase the retention rate, Georgia Southern University launched FYE program which includes two mandatory courses (FYE 1220: First-Year Seminar, and FYE 1410: Global Citizens), conversations with professors, intrusive academic advising, giving early alert/midterm grades, and limiting number of withdrawals. This study focuses on the two mandatory courses. FYE 1220 is designed to facilitate academic integration, that is, to help students integrated into the university environment. FYE 1410 is designed for social integration which helps students socially engaged in local and global communities. According to Tinto's integration theory, these two courses should provide positive impact on academic success through facilitating social and academic integration.

4.1 FYE 1220 first-year seminar

FYE 1220 First-Year Seminar is a two-credit-hour seminar that serves as an academic, theme-based introduction to college-level inquiry and extends the orientation process into a student's first semester at Georgia Southern University. The catalog description of FYE 1220 is as follows:

> Thematic seminar designed to promote information literacy skills and support students' cognitive and affective integration into the university

community. Required during the first semester for all students new to the university (except for transfer students with 30 hours or more); students may not withdraw.

4.2 FYE 1410 global citizens

FYE 1410 Global Citizens is a one-credit hour course and is recommended to be taken in second semester after taking FYE 1220. Students will identify major themes across diverse societies in their historical and cultural contexts and will apply this knowledge through engagement in local and global communities. The catalog description of FYE 1410 is as follows:

> Graduates in all fields face many challenges in today's world that require the ability to think and engage globally. Doing so requires recognizing that different cultural perspectives influence the understanding of world issues. In this seminar, students explain factors that contribute to their cultural perspective, apply multiple cultural perspectives to global issues, and then apply this knowledge through engagement with local communities or problems. Faculty from across the university design courses drawing on examples from their disciplines, and students are encouraged to select sections offered by faculty in their fields or potential fields. In preparation for subsequent coursework as upper-class students, first-year students enroll in this course in their second semester. Prerequisite: FYE 1220

5. Hypotheses of The Study

This study is to evaluate the impact of two mandatory courses on academic success of students majoring in information technology. Academic success is measured by GPA. The level of impact is measured by degree of correlation between course performance and GPA. The hypotheses of this research are:

- The correlation between FYE 1220 grade and GPA is higher than the correlations of other course grades with GPA.
- The correlation between FYE 1410 grade and GPA is higher than the correlations of other course grades with GPA.

6. Descriptions of Other Four First-Year Courses

Four first-year courses are selected to make the comparison with FYE 1220 and FYE 1410. ENGL 1101 and MATH 1111 are selected from general study courses. English and math courses are considered as gateway courses and are important in terms of student persistence and academic success **(**Clery, 2011). IT1130 and IT1430 are required courses for freshmen major in information technology.

6.1 ENGL 1101 composition I

ENGL 1101 is a composition course focusing on skills required for effective writing in a variety of contexts, with emphasis on exposition, analysis, and argumentation, and also including introductory use of a variety of research skills.

6.2 MATH 1111 college algebra

MATH 1111 is a functional approach to algebra that incorporates mathematical modeling of real data, business applications and use of appropriate technology.

Emphasis will be placed on the study of linear, quadratic, piece-wise defined, rational, polynomial, exponential and logarithmic functions. Prerequisite: Two years of high school algebra or equivalent.

6.3 IT 1130 introduction to information technology

IT 1130 introduces IT as an academic discipline and the structure of IT Bachelor of Science degree at Georgia Southern University. It also introduces a range of IT applications in different disciplines and different industries. It covers some of the techniques that students will need for later courses, in particular databases and SQL. Prerequisite(s): Familiarity with productivity tools.

6.4 IT 1430 web page development

IT 1430 is a thorough introduction to the languages tools (HTML, CSS, JavaScript) for web page design. It stresses the importance of good coding style. The course also introduces students to the principles of good human computer interface design, including design for people with disabilities. Finally, the course introduces students to object-oriented design.

7. Data Collection

A query similar to the example below was executed for each course with a different WHERE clause. Total 6 courses with 6 sets of data were extracted from the university data warehouse.

```
SELECT gpa, courseGrade
FROM main
WHERE course = 'FYE 1220'
```

8. Data Analysis

This study uses Pearson correlation to measure dependency between course grade and GPA. The 6 sets of data generated 6 Pearson correlation statistics (See Table 1).

Table 1: Correlation between Course Grade and GPA

Course	Correlation with GPA	Sample Size
FYE1410	0.84	108
FYE1220	0.69	392
IT1430	0.63	411
IT1130	0.62	512
ENGLISH 1101	0.58	468
MATH 1111	0.58	455

9. Discussion

9.1 Validation of hypotheses

FYE1410 and FYE1220 have higher correlations with GPA (0.86 and 0.69) than other four courses do (0.63, 0.62, 0.58, and 0.58). The statistic result confirmed the hypotheses of this study. That is,

- The correlation between FYE 1220 grade and GPA is higher than the correlations of other course grades with GPA.

- The correlation between FYE 1410 grade and GPA is higher than the correlations of other course grades with GPA.

Correlation does not imply causation. Strong correlations between FYE 1220 grade and GPA and between FYE 1420 grade and GPA do not necessarily imply that FYE 1220 and FYE 1420 cause the academic success of freshmen. Since there are many uncontrollable influential factors, we can only infer the causation.

9.2 Validation of Tinto's theory

The first course FYE 1220 is designed with a purpose of facilitating students integrated into academic environment, and the second course FYE 1410 is designed with emphasis of social integration. The strong correlations between FYE 1220 grade and GPA and between FYE 1420 grade and GPA validated Tinto's integration theory, that is, academic integration effect of FYE 1220 and social integration effect of FYE 1410 leads to higher academic performance.

Tinto's integration theory has been supported by many empirical studies (Pascarella & Terenzini, 1983; Caisson, 2007). This study provided additional evidence and increased the popularity of the integration theory. The future studies may consider using Tinto's theory to pin down the influential factors that contributed to academic success.

9.3 Validation of first year experience program

Over the last decade or so, Georgia Southern University has invested tremendous amount of effort in implementing First Year Experience Program. As part of First Year Experience Program, FYE 1220 and FYE 1420 have been offered as the mandatory courses since fall 2008. This study finally assessed the impact of the two mandatory courses on academic performance of students and drawn a conclusion to the effort put forward by the faculty and the task force.

With the conclusion, the program can move forward into a fine tuning phase. Faculty can fine tune FYE 1220 and FYE 1420 and make sure that the courses will deliver the outcome of academic integration and social integration which is crucial for retaining freshmen.

9.4 New perspective on introductory courses

Previous studies have reported that English and math courses are gateway courses or momentum points for college students. Failure in passing these courses may delay graduation or trigger drop out (Clery, 2011; Calcagno, Crosta, Bailey, & Jenkins, 2007). For engineering program in particular, calculus has been viewed as a critical filter among freshmen (Mwavita, 2005). However, this study presents a different perspective, that is, it is the major introductory courses that make the difference in academic success or failure amount freshmen major in information technology. The gateway courses might be major introductory courses rather than English and math courses. Table 1 shows that two IT courses have higher correlations with GPA than English and math courses do.

As we often say that first impression matters. Introductory courses are important for freshmen to find motivation and interest to stick with a program.

Introductory courses require special attention at department level. We ought to remind ourselves if we have assigned the most experience professors to the introductory courses. Unfortunately in many cases, the answer is no. In fact, it has been a concern of lack of emphasizing on introductory courses in many undergraduate institutions where introductory courses are taught by graduate teaching assistants. Moreover, the graduate teaching assistants often receive little preparation before going solo (Parrett, 1987). This study remind us that the effort should be made on delivery of introductory level courses and training graduation teaching assistants in order to increase retention rate.

10. Limitations

In social study, the typical limitation is the ability to control the independent variables. There are many influential factors that are uncontrollable or unpredictable. Thus, it weakens the validity of the study and put a limit on generalizations.

> "In the social sciences it is rarely possible to pose questions and provide answers in the manner of some of the natural sciences, and it is a refusal to recognize this that has often led us up the wrong path." (Schonfield, 1971).

This study is not to produce a clear answer, but to promote future investigations in deeper and wider perspectives. It is a solid study that validates the existing theory and produces new perspective on gateway courses.

References

Aysan, F., Tanrıöğen, G., & Tanrıöğen, A. (1996). *Perceived causes of academic failure among the students at the faculty of education at Buca*. U. S. Department of Education. (ERIC Document Reproduction Service No. ED406326).

Bradford, C., & Garris, E. (1991). *Survey on Retention at Higher Education Institutions: Higher Education Surveys Report*. Rockville, MD: Westat.

Caisson, A. (2007). "Analysis of Institutionally Specific Retention Research: A Comparison between Survey and Institutional Database Methods." *Research in Higher Education*, 48(4), 435-451.

Calcagno, J. C., Crosta, P. M., Bailey, T., & Jenkins, D. (2007). "Stepping stones to a degree: The impact of enrollment pathways and milestones on community college student outcomes." *Research in Higher Education*, 48(7), 775-801.

Clery, S. (2011). "Gateway Coursework: Time to Completion." *Data Notes*. 6(3), 1-4. Retrieved from http://hawaii.hawaii.edu/atd/docs/may_june_2011_data_notes.pdf

Connolly, J., & McGrail, J. (1978). *School Variables Affecting Student Learning*. National Institute of Education, Washington, DC. (ERIC Document Reproduction Service No. ED179555).

Damast, A. (2012). "Buried in Debt, and No Degree to Show for It." *Bloomberg BusinessWeek*, 4276, 50-52.

Erwin, J. (1997). "An intrusive, comprehensive advising and career planning system: Eastern Michigan University." *New Directions for Institutional Research*, 94, 89-95.

Grumke, K. (2011). "Study shows college drop outs cost nation millions." *Maneater*, Retrieved from http://www.themaneater.com/stories/2011/8/26/study-shows-college-drop-outs-cost-nation-millions/.

Kadar, R. (2001). "A Counseling Liaison Model of Academic Advising." *Journal of College Counseling*, 4(2),174-178.

Marsh, H. (1984) "Relations among Dimensions of Self-Attribution, Dimensions of Self-Concept and Academic Achievements." *Journal of Educational Psychology*, 76(6), 1291-1308.

Mwavita, M. (2005). *Factors influencing calculus course success among freshmen engineering students.* (Doctoral dissertation). Dissertation Abstracts International Section A: Humanities and Social Sciences, 66(2-A), pp. 490.

Okun, M. A., Benin, M., & Brandt-Williams, A. (1996). "Staying in college: moderators of the relation between intention and institutional departure." *Journal of Higher Education*, 67, 577-596.

Parrett, J.L., (1987). "A Ten-year review of TA training programs: Trends, patterns, and common practices." In Chism, N.Van N., (Ed.). *Institutional Responsibilities and Responses in the Employment and Education of Teaching Assistants: Readings from a National Conference*. The Center for Teaching Excellence, Ohio State University, Columbus, OH.

Pascarella, E. & Terenzini, P. (1983). "Predicting voluntary freshman year persistence/withdrawal behavior in a residential university: A path analytic validation of Tinto's model." *Journal of Educational Psychology*, 75(2), 215-226.

Raymondo, J. (2003). "The Effects of an Abbreviated Freshman Year Seminar Program on Student Retention and Student Academic Performance." *Research for Educational Reform*, 8(2), 46-55.

Schonfield, A. (1971). "Introduction to the Annual Report", Social Science Research Council, Newsletter Special. London.

Stage, F. K., & Hossler, D. (1989). "Differences In Family Influences On College Attendance Plans For Male And Female Ninth Graders." *Research in Higher Education*, *30*(3), 301-315.

Taylor, R. (2005). "Creating a Connection: Tackling Student Attrition Through Curriculum Development." *Journal of Further & Higher Education*, 29(4) 367-374.

Terrion, J. & Leonard, D. (2007). "A Taxonomy of the Characteristics of Student Peer Mentors in Higher Education: Findings from a Literature." *Mentoring & Tutoring: Partnership in Learning*, 15(2), 149-164.

Tinto, V. & Cullen, J. (1973). *Dropout in Higher Education: A Review and Theoretical Synthesis of Recent Research.* New York: Columbia University Teachers College.

Wolniak, G., Mayhew, M., & Engberg, M. (2012). "Learning's Weak Link to Persistence." *Journal of Higher Education*. 83(6), 795-823.

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«Learning in the Traces of Greek Culture»: A CLIL Project for Raising Cultural Awareness and Developing L2 Skills

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Abstract: In response to the new demands of education in Greece, including a significant percentage of multilingual and multicultural student populations, the need of teaching Greek as a Second language (GL2) has been mandatory for the sake of immigrant students' inclusion in the dominant society. This pilot project, following the Content and Language Integrated Learning (C.L.I.L) approach, has been piloted with a class of 30 immigrant children (aged 11 years old) of Albanian origin, who had been attending a Greek primary school for 3 years. It was initiated with the purpose to provide insights into developing students' skills in GL2 and aspects of Greek culture and history. The mini syllabus was developed on the basis of criteria for developing sustainable CLIL teaching as suggested by Coyle's 4 Cs framework (2007) and was designed around ten units with famous Greek ancient monuments being at the core. For the estimation of the feasibility of this project, there have been used three basic tools a) a pre- and a post- test about the language and the content knowledge assessment, b) journals kept by the teacher and c) portfolios kept by the students throughout the project. The findings showed a significant improvement of the students' skills in GL2, as well as their enhancement of content knowledge.

Keywords: CLIL, second language, culture cultural awareness language skills

Introduction

The European Union has indicated a great interest in promoting multilingualism in the current society, and launched numerous actions to support and maintain linguistic diversity in European context (European Commission, 2003)Typically, the Action Plan "Promoting language learning and linguistic diversity 2004-2006" makes an extensive reference to different areas of language education such as the extension of the benefits arising from language learning to all citizens as a lifelong activity, the need to upgrade the quality language teaching at all levels and of course the need for a European environment that encourages learning. Within this wider promotion of multilingualism, the Content and Language

Integrated Learning (CLIL) is proposed as an educational approach with the purpose «to promote multilingualism and multiculturalism in Europe "(Järvinen, 2007:254). Therefore, introducing the CLIL approach at all educational levels has been recorded as one of the priorities of EU in acknowledgement of its considerable beneficial aspects which are reported in its Action Plan for Language Learning and Linguistic Diversity (European Commission, 2003: 8, in Griva, Chostelidou & Panteli, 2014).

CLIL is a dual focused educational approach, a pedagogical tool of promoting the learning of both a foreign/second language and other curricular content at the same time (Coyle in Marsh 2002). In other words, teaching in a CLIL framework requires a dual focus approach, which implies on the one hand gaining knowledge related to a subject area (eg geography, history, maths, religion, etc.) and on the other hand, students' overall skills development in a second/foreign language.

According to Eurydice (2006: 8), CLIL presents "a special approach to teaching in that the non-language subject is not taught in a foreign language but with and through a foreign language" . CLIL is a learning approach applicable to all sectors of education, which can be realized in various ways, from a few hours per week to courses which a duration of several months (Coyle, 2007). The specific approach has been practiced across many countries in various models distinguished between total/partial immersion to language showers and crosscurricular projects.

A number of studies have indicated that CLIL is an effective educational practice for students to develop L2/FL (Griva et al, 2014a ,Griva et al, 2014b, Griva & Kasvikis, in press, Stoller, 2004; Linares & Whitaker, 2007; Mehisto and Asser, 2008)and gain knowledge in various subject areas. Specifically, significant advantages have been brought about in the field of the cultural awareness development (Christ, 2002; Korosidou & Griva, 2013, 2014; Pavlou & Ioannou, 2008;Judith, 2010) as students have the opportunity to come in touch with cultural elements and participated in culture-based topic projects.

The involvement of students in a CLIL class, in which the CLIL approach is applied, implies a substantial increase in exposure of students to the target language, as the CLIL environment tends to multiply the hours spent in the target language as compared to traditional methods of teaching languages (Dalton-Puffer & Smit, 2007). Also, learning the language through content gives a real opportunity for students to develop academic skills and critical thinking, benefits which are related to language skills development and the students' academic performance and school success (Troncale, 2002). Thus, it has been revealed that students who participate in CLIL classes show a significant improvement in content knowledge of a particular school lesson (Grabe & Stoller, 1997, Stoller, 2004, Serra, 2007).

Introducing CLIL can also be advantageous in terms of a) promoting intercultural knowledge and understanding, and helping students understand

people with different cultural backgrounds, b) improving language competence and oral and intercultural communication skills (Gimeno, et al., 2013; Christ, 2002 by Paul II., John S. &., 2008).

The CLIL approach can be adopted in different types of schools and with different learners and can be applied to all educational levels, from primary to high education (Holmes, 2005; Dulton-Puffer, 2011). Nevertheless, while CLIL instruction can be undertaken in any language, English is the most popular target language in the European context, given its role as a European and international lingua franca (Juan-Garau, 2008). CLIL as an educational approach is widespread in Europe and in a large educational spectrum. However, it could be argued that the linguistic, cultural and educational local context determine the type of CLIL as an enforcement action in a country. For example the Italian regions neighbouring German-speaking countries such as Austria and Switzerland apply CLIL in German in an attempt to dominate and maintain friendly relations and mobility between these countries. In other cases, it may be taught through CLIL, the language of origin and cultural heritage such as a CLIL in Greek language in some parts of Germany-where there is a high percentage of Greek immigrants- or CLIL in Welsh in Great Britain (Eurydice, 2006).

The proposed project

Rationale and the objectives of the project

Having considered the advantageous outcomes of CLIL approach indicated in previous international studies (Stoller, 2004; Linares& Whitaker 2007; Mehisto and Asser, 2008), as well as implementations at national level (Griva et al, 2014a ,Griva et al, 2014b, Griva & Kasvikis, in press), we designed and implemented a pilot CLIL project. Furthermore, the limited number of studies carried out as well as projects implemented in Greece with GL2 as a medium of instruction was another reason for launching the project.

The pilot project was aimed to develop students' competence in Greek as a second language (GL2) and enhance cultural awareness of the "Greek past" though knowing of Monuments and Historic Sites in Greece.
More specifically, the CLIL project was introduced to serve the dual aim of:

-Enhancing immigrant students' learning experience by exploiting the synergies between two subjects (GL2 and culture) and developing both target language skills and (inter)cultural awareness and historic understanding.

- Measuring the feasibility of the project in students' skills development in GL2 and their content-knowledge enhancement in relation to aspects of the Greek culture.

Sample

The sample of this pilot intervention consisted of 30 immigrant students of Albanian origin, who had been attending a Greek primary school in Larissa (a

city in Central Greece) and had been learning Greek as a second language (GL2). It is worth mentioning that these students were placed in the A2 level of the CEFR (Common European Framework of Reference) and they took part in this four-month programme (March – June 2014) with the permission of their parents. Fifteen (15) students, involved in the experimental group, were taught GL2 and aspects of history and culture through CLIL approach. The control group (15 students) attended a different classroom of the same school and followed the regular program with lessons being conducted in the traditional way.

Design of the project

The design of the pilot project was based on the principles of Coyle's 4Cs framework(2007), a useful pedagogic framework, which accounts for the "interrelationship between content (subject), communication (language), cognition (thinking) and culture" (Costa & D'Angelo, 2011: 6).

This CLIL module was designed in the form of a topic-based mini-syllabus incorporating a variety of activities and games, such as role play, constructions, puzzles, dramatisations, e-games etc. In fact, studies have indicated that games in the language class enhance students' communicative skills and provide opportunities for holistic language development (Griva & Semoglou, 2013; Tomlinson & Masuhara, 2009, Papadopoulos et al., 2012).

In this framework, the expected learning outcomes involved the development of the students':

i) Cognitive skills, through guiding students into knowledge-based activities where they were involved in problems solving and decision making situations.
ii) Communication skills, through their participation in game activities, in dramatizations and in discussion activities where students were asked to express their views on a topic in group activities using the target language in authentic situations.
iii) Cultural sensitivity and awareness, through engaging students in content-based activities that enhanced historical and cultural understanding (Korosidou & Griva, 2014).

The topics of the project were selected on the basis of including a variety of periods in which the monuments were built and considering the impact of those monuments on the life of their era. Students throughout the intervention, learnt about the Greek monuments, their construction, their role in the life of that era and their echoes in Modern Greek reality. The mini syllabus was designed around ten units encompassing some of the famous monuments in Greece.

a) Minoan Palace

The students were informed about the Minoan era and its chronological borders; also the parts of that the Minoan Palace were analyzed and constituted special stimulus for the students' further research. Special attention was paid to the operations of the Minoan Palace and its role in the daily local people's life till the decline of the Minoan Civilisation through multi-sensory activities.

b) White Tower of Thessaloniki
The students were placed in the era of the construction of the White Tower in the Ottoman's empire, while they were engaged in inquiry and game-based activities regarding the chronological borders of the empire. Moreover, students were motivated to investigate the importance of the tower for the city of Thessaloniki from its construction as a fortifies tower in the 15th century, Catering Guard of Janissaries and a prison death row to the present as an important museum.

c) Ancient Theatre of Larissa
The Ancient Theatre of Larissa constituted an important stimulus for the students in matters of developing their investigating skills, the target language and their intercultural awareness. They were given opportunities to realize its position in the Roman era while special emphasis was given to its role and significance in the daily life of the local people as a place of theatrical performances, assemblies, and roman arena. Finally, students constructed a craft of the theatre made of paper for the better understanding of the parts of it.

d) Philippi
The students participated in multisensory activities regarding the archaeological site of Philippi. They discovered the parts that this site consists of underlining the significance of them - a fortification wall, a theatre and several buildings- in the spotlight of the acne in the Hellenistic period and the expansion of Christianity through the teachings of St. Paul.

e) The Royal Tombs of Vergina
The Royal Tombs of Vergina became a subject of major 'investigation' from the part of the students. They took on the responsibility to 'discover' virtually the tombs and present their findings in the classroom. They dealt with the excavations of the tombs from the archaeologist Manolis Andronikos and the findings of the discoveries in way that was more than motivating for them through e-presentations, games and dramatizations.

f) Parthenon
Students were introduced into the Greek Mythology and the folklores about the Gods of Mount Olympus and their unique powers to lead people and their actions. Parthenon, as a gift for the Goddess Athena, constituted a stimulus for the 'Mythological trip', while its significance on people's life as a temple and treasury was especially noted.

g) The navel of the earth
Regarding the topic of "The navel of the earth", the students were engaged in inquiry activities as for the myths and the legends about this monument and its position in the broader context of the archaeological place of Delphi. Digital presentations, e-games, pictures limerick poems written by the students and collage about the site supported and led the knowledge gaining of the students and their historic awareness.

h) The Lion Gate
The Lion Gate was taken as a symbol for the general context of the Mycenaean era in which students were placed. Special emphasis was given to the representation of the lionesses which was an emblem of the Mycenaean kings and a symbol of their power to both subjects and foreigners and to the construction of this massive and imposing monument.

i) The palace of the Grand Magister
The students were placed in the 14th century when Rhodes was under the Knights authority. They 'investigated' the historic knowledge about the Palace of the Grand Magister which was built by the Knights and it functioned as a palace – during the Knights ages – headquarter and fortress – during the Ottoman's Empire. The continuous reconstructions of the palace were also a basic 'area' of inquiry-based activities for students to participate actively.

j) Theatre of Dodona
The theatre of Dodona constitutes the last thematic area of the project. The limited information about its origins, its stated reconstructions and its role in the local life were the major points around which the games and interactive activities were designed.

Implementation
The project included 30 intervention sessions focused on the thematic areas of the monuments in Greece. An attempt was made to create a pleasant and creative learning environment, where students actually could develop personal and interpersonal skills (Papadopoulos, 2014). Thus, students had the chance to come into contact with a variety of stimuli, get acquainted with the historical and cultural wealth through the Greek monuments and express their own creativity. In such a context, opportunities were provided for collaboration, interaction, communication and problem solving.
The project was carried out through three stages:

a) Pre-stage,

The focus of this stage was stressed on activating students' background knowledge and introducing the topic of the 'monuments' in a multisensory learning environment. There was used multimodal educational material to initiate discussion, such as power point slides, videos and pictures of the monuments. Meanwhile, the students expressed their queries and they did not hesitate to interact and participate in initial discussions about the monuments. In addition, the students were introduced to multimodal texts related to each monument, while coming across the necessary vocabulary.

b) Task-circle

In the main stage of every session, the students were put in the center of the learning process and were given opportunities to communicate and interact with their classmates. They were involved in various inquiry-based activities and had the opportunity to investigate, collaborate interact and communicate with each other, while trying to 'solve the problem' (Coyle, 2006; Griva & Kasvikis, in press; Papadopoulos & Peiou, 2014).

Among the creations the students produced during this stage were:

- A map of Greece with points in the cities of the monuments.
- A collage of stories regarding the monuments
- A craft of the Ancient Theatre of Larissa made of paper
- A Limerick poems book

They also created their own illustrated stories related to specific monuments they were taught about, and were involved in a variety of creative activities that helped them develop their writing and speaking skills in the target language (Papadopoulos, 2014).

After the completion of the task, each group presented their work in the class to inform their classmates about their 'product'. The teacher tried to incite a creative and constructive discussion, through their presentations, with the purpose of developing students' descriptive language sub-skills.

c) Follow-up stage.

The focus of the follow up stage was on the provision of continuous feedback from the part of the teacher and reflection on the learning process from the part of the students, as well as on recycling certain specific vocabulary. For the purpose of vocabulary and structural patterns consolidation, the students were involved in a number of games, crosswords, puzzle constructions, table games etc.

The students were assessed by their teacher through their portfolios, which included reflection notes, crafts produced by them and their stories and poems. Also, students reflected on their own learning by self-assessing their performance and their learning. The students' assessment was also achieved by estimating their participation in all activities and the general learning process. In fact, their involvement in games and physical activities can be an enjoyable way of informal assessment that could be used effectively within a content-based curriculum (Griva & Semoglou, 2013; Kelner, 1993 in Korosidou & Griva, 2014).

The evaluation of the project

For the estimation of the efficacy of the CLIL project in relation to content and the target language (GL2), there was used a pre-test at the beginning of the programme and a post-test after the completion of it in order to identify the students' cognitive level related to aspects of Greek culture and history, as well as their competence in GL2. Students' were asked to choose the correct answer in multiple choice activities, crosswords, matches and creative writing activities.

Furthermore, the journals kept by the teacher/researcher were used as an additional evaluation tool for each teaching session. As far as the form of the

journal is concerned, it was based on the "questions for journal keeping" of Richards & Lockhart (1994). The questions of the journals that were set by the teacher/researcher focused on the fields.

a) questions about instruction
1.What objectives did I set? To what extend did I achieve them?
2. What teaching material did I use? How effective were the teaching aids?
3. What forms of communication among students and the teacher were used?

b) questions about students' attitude and participation
1. Which was the students' attitude at the beginning, middle and at the end of each activity? How did I react?

c) questions about the general estimation of the instruction.
1) What went well and what did not? Why?
2) What could I change? Why?

Moreover, throughout this project, the students kept their portfolios for their self-assessent purposes. At the end of every unit, the students recorded their strengths and weaknesses and they kept some of their constructions and writings. Actually, studies have indicated the beneficial impact of Portfolio on students' thinking abilities and its usefulness for their future life (Papadopoulos & Peiou, 2014; Wade & Yarbrough, 1996). It has also been proved to be advantageous in the development of their communicative and organizing skills, since they understand much more about the learning process and develop meta-cognitive awareness (Brown, 2002; Young, 2002).

The results

Teacher- researcher's Journal

The qualitative analysis of the journal entries led to the creation of four typologies: a) teaching process, b) teacher's role, c) student's attitudes and d)overall evaluation of the teaching session encompassing a number of categories and subcategories (see Table 1).

Table 1. Journal Records

Typologies	*Categories*	*Subcategories*
Teaching Process	Techniques And activities	o Intergroup interaction
		o whole class discussion
		o brainstorming
		o teaching with o multimedia
		o differentiated activities
		o creative activities
		o inquiry-based activities

	Aids	o posters, maps
		o books
		o iinformation technologies (videos, powerpoint, e-games)
	Language of Communication	o use of mother tongue (L1)
		o use of second language (L2)
		o nonverbal communication
Teacher's Role	Provision of Assistance	o encouragement
		o instructions for the activities
		o scaffolding
		o organizing students'
		o work according to their interests
Student's Attitude	Students' Behavior Participation	o learning about history and culture as a pleasurable experience
		o interest in inquiry -based
		o activities
		o interest in group cooperation
		o active participation in crea
		o activities
		o participation in
		o experiential activities
Overall Evaluation of the teaching session	Problems Encountered	o students' difficulty in understanding certain concepts
		o students' difficulty in specific vocabulary
		o students' difficulty regarding
		o receptive skills
		o students' difficulty regarding
		o productive skills

	Learning Outcome	○ use of target language for ○ communication
		○ acquiring ○ content-specific vocabulary
		○ social skills development
		○ cognitive skills development
		○ self- and peer-assessment ○ skills development
		○ Developing content-specific knowledge
		○ pleasurable learning

Results of the pre- and post- test

Specific Vocabulary

During the pre-test, the teacher distributed to each student individually a worksheet in which the student had to match the Greek content words (specific vocabulary) of the Part A' with the Albanian words of the Part B' with the same meaning. The following table, 2.1, shows the results of the correct answers of each student comparing his/her performance in the pre-test to the post- test one.

Table 2.1 Total of correct answers

	Experimental Group		Control Group	
Students	Number of words pre-test	Number of words Post test	Number of words pre-test	Number of words Post test
Student 1	7	13	9	12
Student 2	9	14	6	10
Student 3	7	12	8	9
Student 4	8	13	7	10
Student 5	8	12	7	9
Student 6	7	12	6	10
Student 7	7	14	6	10
Student 8	6	12	5	9
Student 9	8	12	7	10
Student 10	7	11	8	12
Student 11	8	14	7	10
Student 12	6	13	7	8

Student 13	6	12	6	9
Student 14	6	10	6	9
Student 15	7	12	6	10
Mean	7,13	12,4	6,73	9,8

The Table 2.2 shows the mean score and the standard deviation in the correct answers of the students of the experimental and control group. The one-way ANOVA test indicated that there were statistically significant differences between the two groups in using specific vocabulary ($F(30)=5.321$, $p<0.05$), when performing the task in Greek (L2).

Specifically, the students of the experimental group showed a clear increase in the number of the correct answers at the post-test (m: 12,4) comparing it to the pre-test results (m: 7,13). Regarding the control group's students, the increase was lower at the post test (m: 9,8) when compared with their pre-test one (m: 6,7).

2.2 Mean and Std. Deviation
Experimental Group and control group

	Experimental Group		**Control Group**	
	Pre-Test	**Post-Test**	**Pre-Test**	**Post-Test**
Mean	7,13	12,40	6,73	9,80
Std. Deviation	0,915	1,121	1,032	1,082

Writing skills

Concerning the second activity, the students had to use 6 of the words of the previous exercise to create their own story entitled "My own culture". The students were assessed through the principles of the Common European Framework of Reference for Languages in the sub-criteria shown on the table 3 with the results of the pre- and post- test for the experimental and control group.

As the results indicate, the students of the experimental group demonstrated a clear development in the writing skill of the target language. They developed their "text production" ability, their vocabulary and their structural correctness while it is obvious that they achieved to answer the task question better, more accurately and with more complexity at the post than in the pre-test.

Table 3. Writing Skill Development
Experimental Group

CEFR Grids for Assessing the Writing Skill	
Production	
Pre-Test	**Post-Test**
The students were able to write a series of simple phrases and sentences linked with simple connectors like "and", „but" and „because".	*The students could write straightforward connected text on topics, which are familiar, or of personal interest.*
Accuracy	
Pre-Test	**Post-Test**
The students were able to use some simple structures correctly, but still systematically makes basic mistakes.	*The students were able to use reasonably accurately a repertoire of frequently used "routines" and patterns associated with more predictable situations*
Range and Complexity	
Pre-Test	**Post-Test**
The students could use basic sentence patterns with memorised phrases, groups of a few words and formulae in order to communicate limited information in simple everyday situations	*The students were able to have enough language to get by, with sufficient vocabulary to express themselves with some hesitation and circumlocutions on everyday topics.*
Orthographic Control	
Pre-Test	**Post-Test**
The students could copy short sentences on everyday subjects and write with reasonable phonetic accuracy (but not necessarily fully standard spelling) short words that are in his/her oral vocabulary.	*The students could produce continuous writing, which is generally intelligible throughout. Spelling, punctuation and layout are accurate enough to be followed most of the time.*

As for the students of the control group, they maintained about the same linguistic level in the target language in most of their sub-skills of their written language. However, they managed to develop partially some of the sub-skills of the writing skill as shown in below being assessed through the CEFR Grids for the writing skills evaluation.

More specifically, the students developed

- Their "Production" sub-skill because of the touch and the practice they did.
- Students were able to understand and produce a text with very common words and phrases that are related to their every day life and very basic information.
- They could also pass on the relevant message in a simple & direct exchange of limited information on personal & concrete matters, although more complex messages may be compromised, leading to frequent misunderstanding.
- They could deploy basic vocabulary & structures that manage to convey a simple message.

Content knowledge

In the next activity, students were asked to perform a multiple choice exercise related to the content knowledge. The table 4 presents the Mean performance and the Standard Deviation of the answers as far as the students of the experimental and control group are concerned. The one-way ANOVA test indicated that there were statistically significant differences between the two groups in content knowledge ($F(30)= 6.846$, $p<0.05$).

With the analysis of the experimental group students' answers, an increase was revealed in students' correct answers at the post- test (m: 19,4) compared to those at the pre-test (m: 9,8). An increase but not to the prior students' extend, was revealed regarding the control group students, who achieved lower marks (m: 14,4), compared to the performance of the experimental group, at the post test.

Table 4 Mean and Std. Deviation
Experimental Group and control group

	Experimental Group		Control Group	
	Pre-Test	**Post-Test**	**Pre-Test**	**Post-Test**
Mean	9,80	19,47	9,60	14,53
Std. Deviation	1,080	1,240	1,500	1,410

Discussion

This topic based project aimed at developing immigrant students' competence in GL2 and raising of their cultural awareness and historic understanding. As for the language competence, the pilot CLIL project proved to help students of the experimental group develop their writing

skill and its sub-skills -"production", "accuracy", "range and complexity" and the "orthographic control". More specifically, as shown from the evaluation of the writing skills, the students used adjectives and various words to "adorn" their language, because they realized through this project how to develop their accuracy and how to use the target language in each communicative circumstance (Lo & Murphy, 2010, Ruiz de Zarobe, 2010, Zydatiß, 2007). It is worth mentioning that the CLIL students' performance in writing skills was higher than that of the control group. Actually, previous studies revealed that the students who attend CLIL classes achieve better results compared to the students who receive a traditional language instruction (Jexenflicker & Dalton Puffer, 2010 in Ruiz se Zarobe, 2010). In this intervention, the students of the experimental group seemed to have created a wide range of general and specific vocabulary and structural resources that leads to the producing of more complex and accurate texts in matters of tenses, spelling and register with high communicative characteristics in the way the messages are conveyed.

Furthermore, according to the records of the teacher's journal throughout the programme, students came into continuous communication and interaction with the teacher and their classmates in the target language as a learning community in which students with the common aim of enhancing and sharing knowledge, are willing to support the community and non members and they are valued for their various contribution establishing an environment in which learning is of major importance and as a result, the more the students get in touch and use the language, the more fluent and ready to use it they become (Eurydice, 2006). Students had the opportunity to use GL2 in various ways, while participating in interactive games. As a result through the analysis of journals' entries, it was showed that students seemed to become more and more confident to communicate in the target language, while competence in communicative skills was also revealed in many previous studies conducted with content-based FL/L2 programmes. (Hűttner & Rieder-Bűnemann, 2010, Maillat, 2010, Mewald, 2007, Moore, 2009). The students through their participation in the CLIL project became more determined and decisive to use the target language in a 'non-threatening' game-based context, in which they were taught certain aspects of history and culture. Also, they comprehended concepts, they expressed their own ideas and they stated their difficulties in the target language.

With regard to the subject area, the results of the pre- and post- test showed students' development in content knowledge. The Greek monuments constituted a source of knowledge and values for the students. They gained a wealth of knowledge about the Greek culture,

while this has been proved to have a positive effect on making immigrant students understand aspects of Modern Greek community. The students through the collaborative activities participated actively in the learning process and of course they managed to direct their own learning, which is a significant skill of the learning communities. So, this topic and game-based project at the same time could not but serve beneficially for the students' cognitive and social skills development. In other words, immigrant students proved to develop their competence in GL2, be familiarized with aspects of Greek history and culture, and enhance their motivation for the learning process.

References

Brown, J. O. (2002). Know thyself: the impact of portfolio development on adult learning. *Adult Education Quarterly.*

Costa, F. & D'Angelo, L. (2011). CLIL: a suit for all seasons? *Latin American Journal of Content and Language Integrated Learning* 4 (1), 1–13.

Coyle, D. (2006). Towards strategic classrooms: Learning communities which nurture the development of learner strategies. *Language Learning Journal,* 31 (1), 65-79.

Coyle, D. (2007). Content and Language Integrated Learning: Towards a Connected Research Agenda for CLIL Pedagogies. *The International Journal of Bilingual Education and Bilingualism*, 10 (5), 543-562.

Dalton-Puffer, C. (2011). Content-and-language integrated learning: From practice to principle? *Annual Review of Applied Linguistics*, 31(1), 182-204.

Dalton-Puffer, C., & Smit, U. (2007). Introduction. In C. Dalton-Puffer & U. Smit (Eds), *Empirical perspectives on CLIL classroom discourse*. Wien: Peter Lang, 7-24.

Eurydice. (2006). *Content and Language Integrated Learning at School in Europe*. Belgium: European Commission.

European Commission.(2003). *Promoting Language Learning and Linguistic Diversity: An Action Plan 2004-2006*. Brussels: European Unit. Accessed from http://ec.europa.eu/education/doc/official/keydoc/actlang/act_lang-en.pdf .

Gimeno, A., Ó Dónaill, C. & Zygmantaite, R. (2013). *Clilstore Guidebook for Teachers*. Tools for CLIL Teachers. Accessed from URL: http://www.languages.dk/archive/tools/book/Clilstore_EN.pdf.

Grabe, W., & Stoller, F.L. (1997). Content-based instruction: Research foundations. In Snow, M.A. & Brinton, D.M. (Eds.). *The content-based classroom: Perspectives on integrating language and content*. White Plains, NY: Longman, 5-21

Griva, E. & Kasvikis, K. (in press). CLIL in Primary Education: Possibilities and challenges for developing L2/FL skills, history understanding and cultural awareness. In N. BakićMirić & D. Erkinovich Gaipov (Eds), *Current trends and issues in higher education: an international dialogue*. Cambridge Scholars.

Griva, E., Chostelidou, D. & Panteli, P. (2014). Insider views of CLIL in primary education: challenges and experiences of EFL teachers. *International journal for innovation, education and research,* 2 (8).

Griva, E., Chostelidou, D. & Semoglou, K. (2014). "Our neighbouring countries": Raising multicultural awareness through a CLIL project for young learners. In A. Akbarov (Ed.), *Linguistics, Culture and Identity in foreign language education*, 607-614.

Griva, E. & Semoglou, K. (2013). *Foreign language and Games: Implementing Physical activities of creativity at early years* (In Greek). Thessaloniki: Kyriakidis Editions.

Holmes, B. (2005). Language Learning for the 21st Century – the normalisation of Content and Language Integrated Learning (CLIL) within the curriculum for England. Position Paper: CILT.

Huttner, J., Rieder-Bunemann, A. (2007). The effects of CLIL instruction on children's narrative competence. *Views. Vienna English Working Papers*, 16 (3), 20-27.

Järvinen, H. (2007). Language in Content and Language Integrated Learning (CLIL). In Marsh D. & Wolff D. (eds). Diverse Contexts – Converging Goals. CLIL in Europe.

Judith, A. (2010). Raising intercultural awareness at primary level through storytelling within a CLIL approach. Master Thesis, Universidade Nova de Lisboa.

Korosidou, E. & Griva, E. (2014). CLIL Approach in Primary Education: Learning about Byzantine Art and Culture through a Foreign Language. *Studies in English Language Teaching*, 2(2), 216-232.

Korosidou, E. & Griva, E. (2013). "My country in Europe": a Content-based Project for Teaching English as a Foreign Language to Young Learners. *Journal of Language Teaching and Research.* Academy Publisher, Finland.

Krashen, S.(1982). *Principles and practice in second language learning and acquisition*. Oxford: Pergamon.

Linares, A. & Whitaker, R. (2007) Talking and writing in a Foreign Language in CLIL contexts: a linguistic analysis of secondary school learners of geography and history. *Revista española de lingüística aplicada,* Monographic 1, 83-91.

Maillat, D. (2010). The pragmatics of L2 in CLIL. In C. Dalton-Puffer. T. Nikula & U. Smit (eds.). *Language Use and Language Learning in CLIL Classrooms*. Amsterdam: John Benjamins.

Marsh, D. (2002). *CLIL European Dimension: Actions, Trends and Foresight Potential*. ec.europa.eu/education/languages/pdf/doc491_en.pdf

Mehisto, P. & Asser, H. (2007). Stakeholder perspectives: CLIL programme management in Estonia. *Journal of Bilingual Education and Bilingualism,* 10(5), 683-701.

Mewald, C. (2007).''A Comparison of Oral Language Performance of Learners in CLIL and Mainstream Classes at Lower Secondary Level in Lower Austria. Από "Empirical Perspectives on CLIL Classroom Discourse, edited by C. Dalton-Puffer and U. Smit. Frankfurt: Peter Lang, 139.

Moore,F.P.(2009). On the Emergence of L2 Oracy in Bilingual Education: A comparative Analysis of CLIL and Mainstream Learner Talk. Sevilla: Universidad de Sevilla. Unpublished PhD thesis.

Murphy, L., (2010). Vocabulary Knowledge and Growth in Immmersion and Regular.

Langiuage-Learning Programmes in Hong Kong. *Language and Education*, 24 (3), 215-238.

Papadopoulos, I., Anagnostoy, E., Karakousi, F., Peiou, V., Semoglou, K. & Griva, E. (2012). Total Physical Response: An implementation of a project for the language development of the first primary school students, *Hellenic Journal of Physical Education.*

Papadopoulos I. (2014). The dramatization of children literature books for the development of the second/foreign language: An implementation of a drama-based project to students of primary school. *Journal of Study in English Language Teaching.*

Papadopoulos, I. & Peiou, V. (2014). The foreign language development of students in a language and traditional dance integrated context: An implementation of a task-based learning project, *Aspects Today Journal of English Language Teachers*.

Pavlou, P. & Ioannou-Georgiou, S. (2008). The educational approach CLIL and the application prospects of the Primary and Pre-Primary Education in Cyprus. *10th Conference of Pedagogical Association of Cyprus*, University of Cyprus, June 2008.

Richards, J. & Lockhart, C. (1994), Reflective teaching in second language classrooms. Cambridge: *Cambridge University Press*, 16 -17.

Ruiz de Zarobe, (2010). *CLIL in Spain: Implementation, Results and Teacher Training*, Cambridge Scholars Publishing.

Zydatiβ. W. (2007). Bilingualer Fachunterricht in Deutschland: Eine Bilanz. *Fremdsprachen Lehren und Lernen.*

Serra, C. (2007). Assessing CLIL at Primary School: A Longitudinal Study. I*nternational Journal of Bilingualism and Bilingual Education,* 10(5), 582-602.

Stoller, F. (2004). Content-based instruction: Perspectives on curriculum planning. *Annual Review of Applied Linguistics,* 24, 261-283.

Troncale, N. (2002). Content-based instruction, cooperative learning, and CALP Instruction: Addressing the whole education of 7-12 ESL students.

Wade, R. C. & D. B., Yarbrough. (1996). "Portfolios: A Tool for Reflective Thinking in Teacher Education?". *Teaching and Teacher Education*, 63-79.

Young, J. (2002). "Creating Online Portfolios Can Help Students See 'Big Picture,' Colleges Say" Chronicle of Higher Education.

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Exploring the Relationship between Classroom Climate, Reading Motivation, and Achievement: A Look into 7th Grade Classrooms

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Abstract. Research has shown that reading development is impacted by a wide variety of factors, including both those specific to the student, most particularly the motivation to read, as well as external factors such as the climate of the reading classroom. Although a great deal of work has been done examining relationships among reading motivation, classroom climate and achievement constructs, there is no clear evidence to date regarding the mechanism by which student specific and external factors influence reading skill. The current study sought to bridge that gap through the use of a moderated mediation model in which the relationships between several aspects of classroom climate and reading achievement were mediated by reading motivation. In addition, the possibility of student gender moderating this mediation model was also investigated. Participants included 104 (49 females, 55 males) 7th grade students from a public school. Participants completed the classroom climate and reading motivation questionnaires after taking their standardized test. Results showed that indeed the relationship of classroom climate to reading achievement was mediated by student reading motivation, and certain aspects of this mediated relationship were moderated by gender. More specifically, greater perceived order and organization, teacher support, and affiliation was associated with higher test scores through the reading motivation mediators of aesthetics, challenge, efficacy, and compliance. Implications of the study are discussed.

Keywords: classroom climate; reading motivation; achievement; middle school students

Introduction

Classroom climate is a key influence on student motivation and, consequently, achievement. Classrooms with high teacher support and involvement tend to have students who enjoy learning and report a high desire for self-improvement and motivation for academic achievement (Battistich, Schaps, & Wilson, 2004; Goodenow, 1993; Patrick, Ryan, & Kaplan, 2007; Trickett & Moss, 1995). On the other hand, classrooms with high teacher control and strict rules are associated with students who report negative feelings about school and less interest in academic achievement and self-improvement (Battistich, Schaps, & Wilson, 2004). Students who are in task-oriented classrooms are more task focused and motivated (Chen, 2005; Klem & Connell, 2004). In a study examining middle school students' perceptions of their classroom social climate and motivation, results showed that the classroom social structure influenced student motivation. Teachers' involvement and autonomy support were positively correlated with student task involvement, motivation and achievement (Stornes, Bru, & Idsoe, 2008). It appears then that teachers can create classroom climates, situations, and relationships that encourage student motivation and eventually achievement.

Classroom climate, student achievement and student motivation are often studied separately but not together as three intertwined elements that need to be examined together (Reyes, Brackett, Rivers, White, & Salovey, 2012). There are numerous studies documenting the impact of classroom climate on student achievement (Allen et al., 2013; LaRoque, 2008; Ryan & Patrick, 2001; Wang & Holcombe, 2010). However, these studies do not explain the specific link between classroom climate and student achievement. Seeking to address the motivational factors influencing student achievement, researchers are focusing on student motivation and achievement but without examining the classroom climate (Kelley & Decker, 2009; Mucherah & Yoder, 2008; Mucherah & Herendeen, 2013; Unrau & Schlackman, 2006; Wigfield et al., 2008). In their study examining the link between classroom emotional climate, student engagement, and achievement, Reyes and colleagues (2012) found that student engagement (motivation) mediated the effects of classroom climate on achievement. The researchers concluded that achievement is not just a student responsibility but is largely associated with the teacher and the classroom climate (Reyes, Brackett, Rivers, White, & Salovey, 2012). In lieu of the above study, it is important to examine aspects of the classroom climate in relation to student motivation and achievement.

Classroom Climate and Achievement

According to Phillips (2003) students are greatly influenced by their teachers. Having this influence, teachers can create classroom climates that the students would choose to be a part of instead of climates where students are required to attend. Teachers who organize their classrooms as learning communities, support their students' autonomy and use innovative ways to present material to students witness increased academic achievement of their students (Phillips, 2003). A

relationship has been identified between classroom climate and academic achievement (Hamann et al., 1990). In this study, a relationship was found between the classroom climate dimensions of involvement, affiliation, teacher support, and organization and student achievement in music. Another study found that a classroom climate that is task oriented, has clear rules, is orderly and organized was positively associated with 6th grade students' academic achievement (Knight, 1991).

Several other studies support the significant impact of classroom climate on student achievement. Students' perceptions of the social structure in the classroom influence their motivation to learn (Allen & Fraser, 2007; Fraser & Fisher, 1986; Goh & Fraser, 1998; Stornes, Bru, & Idsoe, 2008). Additionally, students' perceptions of the school climate are significantly associated with their school engagement which in turn influences their academic achievement (Fraser, 1994). In a study examining the relationship between students' perceptions of school climate, engagement and achievement among 7th and 8th grade students, results showed that students' perceptions that their teachers promote mastery goals and provide social support were positively associated with greater school participation, identification, and grade point average (Wang & Holcombe, 2010). A similar study conducted with younger students revealed comparable results. In their study examining the relationship between classroom climate, motivation and engagement among 5th grade students, Patrick, Ryan, and Kaplan (2007) found that task-oriented classroom climates with high teacher support positively contributed to student regulation strategies, task-focus, and academic achievement.

Teacher-student interaction is another aspect of classroom climate associated with student achievement. Research evidence shows that students who report having positive relationships with their teachers also report being more motivated and engaged in classroom activities than students who report having negative relationships (Goh & Fraser, 2000; Goh, Young, & Fraser, 1995; Klem & Connell, 2004; Vedder, Kouwehoven, & Burk, 2009). Allen and colleagues' study (2013) examined the relationship between teacher-student interactions and achievement among secondary school students. Results showed that positive classroom climates characterized by teacher sensitivity, regard for adolescents' perspectives, order and organization, and task-focus significantly predicted student achievement (Allen et al., 2013). The authors conclude that secondary school class interactions are valuable for student learning and achievement. However, classroom climate in and of itself is not entirely sufficient to promote student achievement. Student engagement in classroom tasks and activities compliment classroom climate to yield positive outcomes.

Reading Motivation and Achievement

Ryan and Deci define motivation as "an internal state that arouses, directs, and maintains behavior" (Ryan & Deci, 2000, p. 56). Behavior can be energized and directed by drives, needs, incentives, goals, social pressure, interests, curiosity, values and expectations, and more. Psychologists have made a distinction in

motivation based on intrinsic and extrinsic factors. Intrinsic motivation refers to the natural tendency to seek out challenges as one pursues personal interests and goals (Ryan & Deci, 2000). When individuals are intrinsically motivated, they engage in activities without expecting incentives or rewards. On the other hand, individuals that engage in tasks because of rewards or punishment are extrinsically motivated (Ryan & Deci, 2000). For example, students may be motivated to read for grades or teacher recognition. Why the interest in motivation, particularly motivation among adolescents? Accumulating evidence provides support for the impact of motivation on student academic outcomes (Guthrie & Cox, 2001; Kelly & Decker, 2009; Mucherah & Yoder, 2008; Mucherah & Herendeen, 2013; Unrau & Schlackman, 2006; Wigfield et al., 2008). Recent findings show motivation, specifically reading motivation, begins to decline in adolescence (Kelley & Decker, 2009; LaRocque, 2008; Lau, 2009). This has prompted an increased interest in motivation among adolescents. In a study conducted in the United States examining middle school students' motivation to read, results showed that motivation to read decreased as grade level increased (Kelley & Decker, 2009). Another study conducted in Hong Kong examining the difference in reading motivation found that students in higher grades (8-9 grades) had significantly lower reading motivation compared to the primary school students (Lau, 2009). The decline in reading motivation is well-established by current research. However, more research is needed to find the reason for this decline.

Most research on reading motivation has utilized the Motivation for Reading Questionnaire (MRQ), a tool developed by Wigfield and Guthrie (1995). Through factor analysis, this research has identified various intrinsic and extrinsic reading motivation aspects that are perceived by students as being distinct. These aspects include reading challenge, efficacy, curiosity, aesthetic enjoyment, grades, recognition, compliance, competition, social reasons, and work avoidance (Guthrie & Cox, 2001; Guthrie et al., 2007; Lau, 2009; McGeown, Goodwin, Henderson, & Wright, 2012; Mucherah & Yoder, 2008; Mucherah & Herendeen, 2013; Unrau & Schlackman, 2006). These studies provide empirical support for the significance of these aspects of reading motivation in student achievement both in the United States and in other countries. Additionally, these studies reveal that different aspects of reading motivation affect achievement differently.

Studies using the MRQ have found reading motivation to be a significant predictor of achievement with different aspects of motivation being uniquely related to achievement. For example, studies conducted in the US among middle school students have found motivation for reading challenge, efficacy, and aesthetics to positively influence achievement (Fulmer & Frijters, 2011; Guthrie et al., 2007; McGeown, Goodwin, Henderson, & Wright, 2012; Mucherah & Yoder, 2008; Unrau & Schlackman, 2006; Wigfield et al., 2008). Similar findings were found in the UK among middle school students (Logan & Medford, 2011; McGeown, Goodwin, Henderson, & Wright, 2012), in China (Lau, 2009; Law, 2008) and in Belgium (De Naeghel, Van Keer, Vansteenkiste, & Rosseel, 2012). However, other studies have

found different results. For example, a study conducted in Kenya examining 6-8th grade students' reading motivation and achievement found that reading challenge and aesthetics but not efficacy significantly predicted achievement (Mucherah & Herendeen, 2013). Another study comparing reading motivation and achievement in 7th grade students from Kenya and the US found reading efficacy and importance of reading to be significant predictors of achievement for the US students while reading challenge and compliance were significant predictors of achievement for the Kenyan students (Mucherah & Ambrose-Stahl, 2014). These studies indicate that reading motivation may not influence achievement similarly across different groups.

Other researchers not using the MRQ have also found a significant relationship between reading motivation and achievement (Kelly & Decker, 2009; Reyes, Brackett, Rivers, White, & Salovey, 2012). In one study, Fulmer and Frijters (2011) explored the influence of a challenging task on middle school students' motivation, attributions for failure and persistence. Results showed that students who were highly motivated were more persistent, read more, and reported fewer attributes to failure. These students also had higher task performance. On the contrary, students who were less motivated read less and reported more attributes for failure such as researcher unfairness, less interest and lack of effort (Fulmer & Frijters, 2011). In summary, accumulating evidence suggests that when students are highly motivated to read, they experience academic success. However, even though research in this area provides empirical support for the significant relationship between reading motivation and achievement, researchers have paid limited attention, if any, to the role classroom climate plays in this relationship. Is it possible that the classroom climate in middle school influences student motivation which then impacts achievement? The current study attempts to address this question.

The purpose of the present study is to examine whether students' perceptions of their reading motivation mediate the relationship between classroom climate and reading achievement on a state standardized test. The following hypotheses were tested:

H1: The impact of competition in the classroom on achievement is mediated by the challenge, and efficacy aspects of student reading motivation.

H2: The impact of teacher support on achievement is mediated by the challenge, efficacy, and compliance aspects of student reading motivation.

H3: The impact of classroom affiliation on achievement is mediated by the aesthetics and social aspects of student reading motivation.

H4: The impact of classroom order and organization on achievement is mediated by the aesthetics, challenge, efficacy, and compliance aspects of student reading motivation.

H5: The mediation effects hypothesized in H1-H4 will be moderated by student gender.

Method

Participants

Data for the current study was collected from 104 students in two public school 7th grade classrooms in the East coast region of the United States. There were 49 females and 55 males. Two English language arts teachers were also examined: one male teacher with 8 years of teaching experience, and one female teacher with 15 years of teaching experience. Of the 104 students, 30 were in the male teacher's classroom. The majority of the student population is white, with 2% minority students. According to U.S. Department of Education, 29.8% of the district's students were enrolled in the federal free and reduced lunch program (US Department of Education, 2012).

Measures

Reading Motivation. Students' reading motivation was assessed using a shortened version of the Motivation for Reading Questionnaire (MRQ) (Wigfield & Guthrie, 1995). The original questionnaire contained 54 items with 11 subscales. The shortened version used in this study contained 29 items and all eleven original subscales. This measure allows for the assessment of 11 different domains of reading motivation. It assesses the domains of *Reading Efficacy* (3 items, e.g. "I am a good reader"), *Reading Challenge* (2 items, e.g. "I like hard, challenging books"), *Reading Curiosity* (3 items, e.g. "I read to learn new information about topics that interest me"), *Aesthetic Enjoyment* (3 items, e.g. "I make pictures in my mind when I read"), *Importance of reading* (2 items, e.g. "It is very important to me to be a good reader"), *Recognition* (3 items, e.g. "I like to get compliments for my reading"), *Compliance* (3 items, e.g. "Finishing every reading assignment is very important to me"), *Reading for grades* (2 items, e.g. "I look forward to finding out my reading grade"), *Social reasons* (3 items, e.g. "I like to tell my family about what I am reading"), *Competition* (3 items, e.g. "I like being the best at reading"), and *Avoidance* (2 items, e.g. "I don't like reading something when the words are too difficult"). The students rated themselves on a four point Likert continuum (e.g., 1="very different from me" to 4= "A lot like me").

This questionnaire was chosen because it assesses multiple dimensions of reading motivation, such as students' overall perception of competency, their intrinsic and extrinsic motivations, and the social aspects of reading. In addition, it distinguishes different kinds of extrinsic motivations such as Reading for Recognition, and Reading for Grades.

Because the measure was shortened, a reliability test was conducted on all 11 subscales. All the subscales received a reasonable Cronbach's reliability value that ranged between 0.61 and 0.84 (see Table 1).

Table 1: Cronbach's Alpha Reliabilities (number of items) of the Reading Motivation Subscales for the Original and Current Study

Subscale	Wigfield &Guthrie[1]	Current Study
Efficacy	.68 (3)	.76(3)
Challenge	.80 (5)	.75(2)
Curiosity	.77 (5)	.71(3)
Aesthetic Enjoyment	.76 (7)	.66(3)
Importance	.52 (2)	.76(2)
Recognition	.55 (5)	.84(3)
Compliance	.69 (5)	.65(3)
Grades	.43 (4)	.63(2)
Social	.72 (7)	.82(3)
Competition	.81 (6)	.74(3)
Work Avoidance	.60 (4)	.74(2)

[1]Wigfield & Guthrie (1995)

Classroom Climate. To assess the classroom climate, students completed a shortened version of the Classroom Climate Questionnaire (CCQ) (Trickett & Moos, 1995). This questionnaire examines students' perceptions of their classroom climate and assesses three major sets of classroom dimensions including relationships, personal growth, and systems maintenance and change. Within the three major dimensions are nine specific domains of classroom climate: *Involvement* (4 items, e.g. "Students put a lot of energy into what they do here"), *Affiliation* (5 items, e.g. "Students enjoy working together on projects in this class"), *Teacher Support* (4 items, e.g. "The teacher takes a personal interest in students"), *Task Involvement* (2 items, e.g. "Getting a certain amount of class work done is very important in this class"), *Competition* (3 items, "Grades are very important in this class"), *Order and Organization* (2 items, e.g. "Activities in this class are clearly and carefully planned"), *Rule Clarity* (2 items, e.g. "The teacher explains what the rules are"), *Rule Strictness* (4 items, e.g. "The teacher will kick a student out of class if he/she acts up"), and *Innovation* (2 items, "The teacher likes students to try unusual projects").

The students were asked to rate how frequently they perceive this occurs in their class on a four point Likert continuum (1=Never; 4=Often). This questionnaire has been used in previous studies and received test-retest reliabilities ranging from 0.72 to 0.90 (Trickett & Moos, 1995; Walberg, 1979). The current study had acceptable reliability values between 0.61 and 0.80 (See Table 2).

Table 2: Cronbach's Alpha Reliabilities (number of items) of the Classroom Climate Subscales for the Original and Current Study

Subscale	Trickett & Moos[1]	Current Study
Competition	.68 (3)	.64(3)
Innovation	.80 (5)	.66(2)
Task involvement	.77 (5)	.65(2)
Rule strictness	.76 (7)	.61(4)
Teacher support	.52 (2)	.80(4)
Rule clarity	.55 (5)	.78(3)
Involvement	.69 (5)	.71(4)
Affiliation	.43 (4)	.76(5)
Order & Organization	.72 (7)	.71(2)

[1]Trickett & Moos (1995)

Academic Achievement. We assessed academic achievement using a state standardized test. The Pennsylvania System of School Assessment (PSSA) test is a state mandated annual test given to Pennsylvania students in grades three through eleven. The PSSA Reading test is based on the state's academic standards for Reading. The test consists of both multiple choice (selected response) and open-ended (constructed response) questions. All questions refer back to reading passages.

It is a criterion-referenced assessment measuring both individual student success on the standards as well as the school's success in providing instruction based on the standards. The state's standards setting committee establishes cut- off scores that indicate mastery (Advanced and Proficient) and non- mastery (Basic and Below Basic). The range of scores for the seventh grade performance level was as follows: 1456+ = Advanced; 1278-1455 = Proficient; 1121-1277 = Basic; and 700-1120 = Below Basic. In the current study scores ranged from 889-2338. Note: This state standardized test has been used previously by Mucherah & Ambrose-Stahl (2014).

Procedure

Student ratings of classroom climate and reading motivation were drawn from questionnaires administered by research assistants who collected data from students during the regular school day. Students were allowed to read independently; however, the graduate assistants were available to answer any questions pertaining to specific items on the questionnaires. Each survey took approximately 15-20 minutes to complete. Reading achievement scores were obtained from the state mandated standardized test: the Pennsylvania System of School Assessment (PSSA) results.

Analysis

First, a test of means for all the classroom climate and reading motivation variables was conducted using the 2 teachers as independent variables. No significant difference was found between the 2 teachers; therefore, the teacher variable was not included in subsequent analyses. In order to test the aforementioned hypotheses regarding the reading motivation subscales serving as mediators for specific classroom climate subscales, a mediated regression model was fit to the data using SPSS, version 21 (IBM SPSS Statistics, 2012). Specifically, the bootstrap method for calculating standard errors (Preacher & Hayes, 2008) was used in conjunction with regression models to test the hypotheses described previously. For each of the classroom climate variables, both direct and indirect paths were tested for statistical significance. For a given climate variable, a significant result for indirect effects coupled with a non-significant direct effect would indicate the presence of full mediation. Conversely, significant indirect effects coupled with a significant direct effect would mean that partial mediation was present. Finally, no significant indirect effects for a particular classroom climate variable would, of course, mean that no mediation was present for that variable. Hypothesis 5, involving the moderation by gender of the mediated relationships, was assessed using the bootstrap standard error approach described by Preacher and Hayes (2008). All analyses were conducted using SPSS macros associated with the methods described in Preacher and Hayes.

Results

Descriptive Analyses

The means and standard deviations for the variables used in this study appear in Table 3. The means for the significant classroom climate subscale scores of order and organization, competition, affiliation, and teacher support were 3.50 (SD = 0.55), 3.44 (SD = 0.46), 3.18 (SD = 0.48), and 3.05 (SD = 0.59), respectively. In this study, females perceived their classroom climate to be higher on affiliation than did males, but for each of the other climate variables means for the two genders were quite comparable. The means for the significant reading motivation scales of aesthetics, compliance, efficacy, challenge, and social were 3. 02 (SD = 0.73), 2.94 (SD=0.77), 2.79 (SD = 0.67), 2.77 (0.89), and 2.16 (SD = 0.94), respectively. In this study, female students rated themselves higher on all the reading motivation aspects (see Table 3).

Table 3: Mean (Standard Deviation) of variables used in the model

Variable	Total sample (101)	Males (53)	Females (48)	*p*-value
Achievement score	1474.84 (236.40)	1443.02 (253.63)	1509.98 (212.92)	0.017
Reading Motivation subscales				
Climate	3.44 (0.46)	3.44 (0.44)	3.43 (0.49)	0.569
Competition				
Teacher Support	3.05 (0.59)	3.05 (0.62)	3.04 (0.55)	0.661
Affiliation	3.18 (0.48)	3.14 (0.54)	3.23 (0.41)	0.021
Order	3.50 (0.55	3.50 (0.56)	3.51 (0.53)	0.756
Classroom Climate subscales				
Aesthetics	3.02 (0.73)	2.82 (0.72)	3.24 (0.68)	0.003
Challenge	2.77 (0.89)	2.65 (0.97)	2.90 (0.80)	0.030
Efficacy	2.79 (0.67)	2.71 (0.65)	2.88 (0.69)	0.037
Social	2.16 (0.94)	1.82 (0.74)	2.54 (1.01)	<0.001
Compliance	2.94 (0.77)	2.84 (0.81)	3.06 (0.70)	0.028

Mediation Model

The Standardized direct and indirect effects of the mediation model appear in Table 4. Of the four Classroom Climate variables, only order and organization had a statistically significant direct effect on the achievement test score when controlling for the mediation effects. This relationship was positive, indicating that the more orderly and organized the students believed the classroom was, the higher their performance on the achievement test. In addition, each of the indirect effects for order and organization was statistically significant and positively related to achievement test scores.

More specifically, greater perceived order and organization was associated with higher test scores through the reading motivation mediators of aesthetics, challenge, efficacy, and compliance. Taken together, these results demonstrate that the relationship of order and organization with achievement was partially mediated by aesthetics, challenge, efficacy, and compliance. See Figure 1 for details.

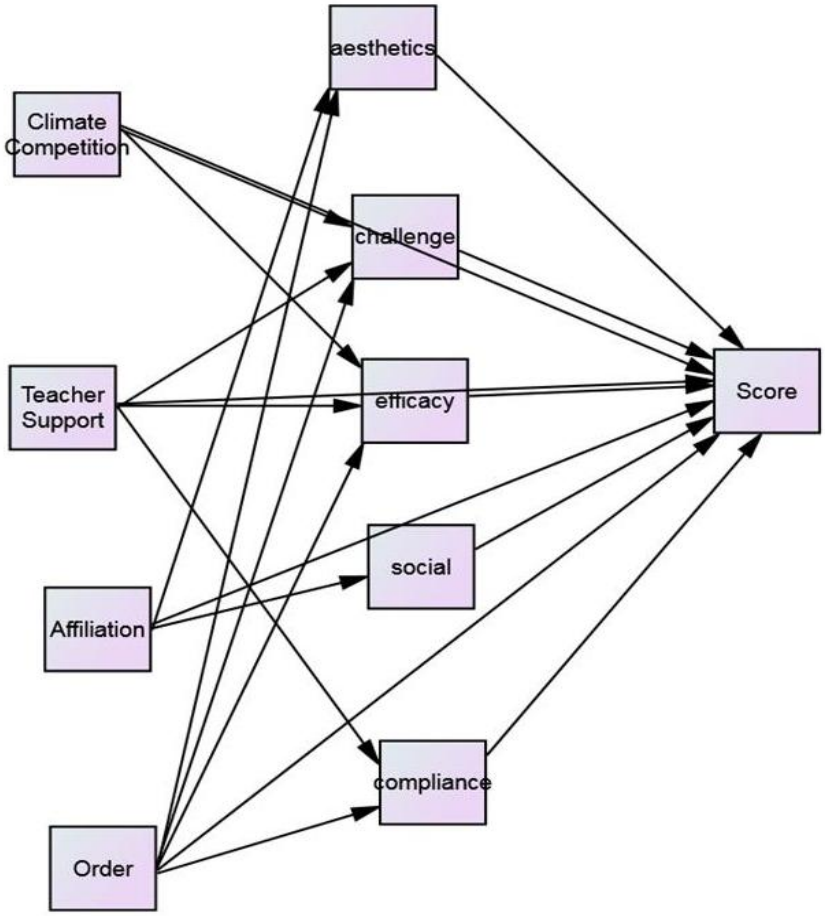

Figure 1. Mediation Model: How classroom climate mediates the association between reading motivation and achievement.

The relationships between each of the other Classroom Climate variables and the achievement test scores were fully mediated by several of the Reading Motivation subscales, with each having at least one statistically significant indirect effect, and none having significant direct effects. For example, the standardized indirect effect of climate competition on the achievement test score through the mediator challenge was 0.25, indicating that the greater the competitive climate in the classroom, the higher the achievement test score, through the challenge mediator. Similar positive statistically significant indirect effects were in evidence for teacher support, through efficacy and compliance, respectively. These results indicate that higher teacher support scores were associated with higher achievement test scores through the efficacy and compliance reading motivation subscale scores. The relationship of affiliation and test score was positively mediated through the social reading motivation subscale, such that a classroom with a higher sense of affiliation (as reported by students) was associated with higher academic achievement, through the social reading motivation subscale. Finally, Table 4 also includes the adjusted R^2 values for the achievement test score by each of the classroom climate

variables and all of their indirect effects together. The total variance explained in achievement by the model was R^2=0.2341. With regard to individual classroom climate variables, order and organization, and teacher support, along with their indirect effects, explained the largest proportion of variance in achievement, with values just above 0.2, whereas affiliation and its indirect effects explained the least amount of variance in achievement, at 0.13.

Table 4: Standardized Mediation Effects for Academic Achievement

Effect	Direct Effect	Indirect Effect	*AdjR²***
Climate Competition > Challenge	0.02	0.25*	0.18
Climate Competition > Efficacy		0.12	
Teacher Support > Challenge	0.03		0.21
		0.07	
Teacher Support > Efficacy		0.12*	
Teacher Support > Compliance		0.17*	
Affiliation > Aesthetics	0.01		0.13
		0.04	
Affiliation > Social		0.14*	
Order > Aesthetics	0.23*	0.13*	0.22
Order > Challenge		0.14*	
Order > Efficacy		0.13*	
Order > Compliance		0.16*	

*Statistically significant at a=0.05

**Adjusted R^2 values for achievement test score associated with individual classroom climate variables and all of their indirect effect

Moderated Mediation

In addition to the hypothesized mediation model, a second primary research question to be addressed in the current study concerned the possibility of student gender being a moderator of the mediated relationships. An examination of the gender effect was important because past research has revealed a gender difference in student reading motivation and achievement (Kelly & Decker, 2009; Logan & Medford, 2011; McGeown, Goodwin, Henderson, & Wright, 2012; Mucherah & Yoder, 2008). In order to address this issue, the approach to fitting the moderated mediation model suggested by Preacher, Rucker, and Hayes (2008), which relies on using the bootstrap to estimate standard errors for the indirect effects, was used. Table 5 includes the standardized indirect effect coefficients for males and females, for those mediated relationships that were found to be statistically significantly different between the genders. As an example, the relationship between climate competition and achievement test score, mediated through challenge, was found to differ between male and female study participants, with the effect being greater for females than males. In other words, the mediated relationship between a competitive classroom climate and student achievement, through the reading motivator of challenge was stronger for females than it was for males. Similar patterns were in evidence for the significant moderated mediator effects associated

with the classroom climate variable order and organization; these indirect relationships were stronger for females than for males. In other words, the relationship of an orderly and organized classroom climate with achievement, through the motivators of aesthetics, challenge, efficacy, and compliance, was stronger for female participants. In contrast, the mediation effects associated with teacher support and affiliation were not moderated by student gender, meaning that the relationships between these variables and achievement that are displayed in Table 4 were statistically equivalent for males and females.

Table 5: Statistically Significant Moderated Mediation Indirect Effects for Academic Achievement

Effect	Male Coefficient	Female Coefficient
Climate Competition > Challenge	0.22	0.28
Order > Aesthetics	0.04	0.24
Order > Challenge	0.13	0.27
Order > Efficacy	0.13	0.22
Order > Compliance	0.11	0.40

*$p<0.05$

Discussion

The goal of this study was to investigate the extent to which the relationship between classroom climate and reading achievement is mediated by individual students' reading motivation and whether these relationships are further moderated by student gender. In particular, four mediational hypotheses were tested, one involving each of the classroom climate variables of climate competition, teacher support, affiliation, and order and organization. The results presented above showed that the relationships between reading achievement and climate competition, teacher support, and affiliation were indeed fully mediated by some aspect of reading motivation. In the case of competition, mediation was completely through challenge, whereas for teacher support mediation was through both efficacy and compliance. For affiliation, the mediated relationship was through social reasons. These results mean that each of these classroom climate constructs is related to achievement only through the lens of some aspect of reading motivation. Conversely, the degree to which the classroom is orderly and organized was found to have both direct and indirect relationships with student achievement. The mediated aspects of this relationship were found to be through the aesthetics, challenge, efficacy, and compliance aspects of reading motivation. Taken together, these results at least partially support each of the hypotheses that were made regarding mediation. Primarily, the impact of classroom climate on achievement does appear to be mediated by reading motivation, and these relationships were all found to be positive. Thus, higher climate competition, teacher support, affiliation, and order and organization scores were associated with higher student reading achievement, through the significant mediating relationships described above.

The final hypothesis that was addressed in this study involved the moderation of these mediated relationships by student gender. In other words, to what extent do the indirect effects described above differ between male and female students? Results presented here showed that student gender did indeed moderate the mediation for climate competition and order and organization. More specifically, the indirect effects of both of these classroom climate variables were stronger for females than for males. Thus, it is possible to conclude that climate competition and order and organization, as mediated by specific reading motivation variables, are more closely associated with reading achievement for girls than they are for boys; however, gender did not moderate the relationships between teacher support or affiliation with achievement. As with the hypotheses associated with mediation, these results partially support the moderation hypothesis described previously.

There were some limitations to this study. Absent are the teachers' and observers' perceptions of the classroom climate and student motivation. Research shows that teachers tend to perceive their classroom climate more positively than their students (Mucherah, 2008; Trickett & Moos, 1995). Triangulation of data sources (from students, teachers and observers) would have provided a complete picture of the classroom climate and student motivation. In addition, having qualitative data on student motivation and the type of material they prefer to read would have provided some data to help interpret the study findings on reading motivation and achievement. Future studies should consider conducting either focus groups, or having interest surveys on reading motivation and classroom climate with middle school students. Having concrete information from students on what they like to read and their ideal classroom climate is beneficial for both researchers and teachers.

Conclusion and Implications

This study has significant practical implications, specifically for educators. As indicated earlier, most research on the relationship between classroom climate and achievement or reading motivation and achievement tends to be general and rarely provides specific information on how student motivation is mediated by specific classroom climate aspects. For example, studies have shown that students who are motivated to read challenging material, have high efficacy, and enjoy reading for aesthetic reasons do better on reading achievement (Guthrie & Cox, 2001; Mucherah & Yoder, 2008; Mucherah & Herendeen, 2013; Wigfield et al., 2008). However, these studies do not explain how certain aspects of the classroom climate might influence these outcomes. The current study suggests there are indeed specific practices that teachers can engage in, with regard to the classroom climate, that are most likely to maximize their students' motivation and achievement. Furthermore, past studies have found a competitive classroom climate to have a less positive influence on student motivation and achievement (Koth, Bradshaw & Leaf, 2008; Mucherah, 2008; Vedder, Kouwehoven & Burk, 2009). Teachers have considerable influence on how their classroom is structured and organized. This study shows that having a competitive classroom that is well organized and orderly, coupled with teacher

support and high student affiliation has a significant positive impact on student motivation and achievement.

In lieu of the above finding, it is suggested that teachers create an atmosphere of reading as a paired, social activity in which students and the teacher share with one another what they are reading and what their opinion of the material is. It appears that the strong focus on reading in order to do well on the high-stakes test has worked to negate viewing reading as an enjoyable activity for students; therefore, this "sharing circle" activity has the potential to reduce that misconception. Having the teacher contribute to the discussion lends credibility to the message that reading can be enjoyed. Additionally, devoting a space to student book reviews is also suggested. This is especially beneficial for students who may be reluctant to speak in class about a book. Seeing their peers reading and reviewing books encourages students to do the same; it is positive peer pressure. The format for the book reviews should be simple so as to encourage students to complete and read them.
With regard to gender differences in motivation, classroom climate, and achievement, our study results are similar to past studies that have consistently found gender difference between males and females specifically in reading motivation and reading achievement (Kelly & Decker, 2009; LaRocque, 2008; McGeown, Goodwin, Henderson, & Wright, 2012; Mucherah & Herendeen, 2013). Except for compliance, females in the present study were intrinsically motivated to read through aesthetics, challenge and efficacy which resulted in high reading achievement. Middle school teachers should pay close attention to what types of reading materials are made available to their students. While most teachers have a library of books in their classroom, it is recommended that the classroom library be expanded to include high interest magazines and other print materials. Doing so may encourage students to read for enjoyment. Interest surveys will help teachers learn what topics are most likely to appeal to their student population; armed with that information, teachers can strive to have relevant reading materials available in their classrooms. Here is an observation from one middle school teacher "In my own personal experience, middle school boys LOVE nonfiction like the Guinness World Record books. Their zeal for those books led me to purchase duplicate copies for my library so as to avoid a fight over which boy got to read it at what time!" (D. A., personal communication, March 26, 2014).

References

Allen, D.A., & Fraser, B.J. (2007). Parent and student perceptions of classroom learning environment and its association with student outcomes. *Learning Environments Research, 10*, 67-82. Doi:10.1007/s10984-007-9018-z

Allen, J., Gregory, A., Mikami, A., Lun, J., Hamre, B. & Pianta, R. (2013). Observations of effective teacher-student interactions in secondary school classrooms: Predicting student achievement with the classroom assessment scoring system – Secondary. *School Psychology Review, 42*(1), 76-98.

Battistich, V., Schaps, E., & Wilson, N. (2004). Effects of an elementary school intervention on students' connectedness to school and social adjustment during middle school. *The Journal of Primary Prevention, 24*(3), 243-262. doi: 10.1023/B:JOPP.0000018048.38517.cd

Chen, J. (2005). Relation of academic support from parents, teachers, and peers to Hong Kong adolescents' academic achievement: The mediating role of academic engagement. *Genetic, Social, and General Psychology Monographs, 131,* 77-127. doi: 10.3200/MONO. 131.2.77-127.

De Naeghel, J., Van Keer, H., Vansteenkiste, M., & Rosseel, Y. (2012). The relation between elementary students' recreational and academic reading motivation, reading frequency, engagement, and competition: A self-determination theory perspective. *Journal of Educational Psychology*, *104*(4), 1006-1021.

Fraser, B. J. (1994). Research on classroom and school climate. In D.L. Gabel (Ed.), *Handbook of research on science teaching and learning* (pp. 493-541).

Fraser, B. J., & Fisher, D.L. (1986). Predicting student outcome from their perceptions of classroom psychosocial environment. *American Education Research Journal, 19,* 498-518.

Fulmer, S. M., & Frijters, J. C. (2011). Motivation during an excessively challenging reading task: The buffering role of relative topic of interest. *The Journal of Experimental Education, 79*, 185-208.

Goh, S.C., & Fraser, B. J. (2000). Teacher interpersonal behavior and elementary students' outcomes. *Journal of Research in Childhood Education, 14,* 216-231. doi: 10.1080/02568540009595765

Goh, S.C., & Fraser, B.J. (1998). Teacher interpersonal behavior, classroom environment and student outcomes in primary mathematics in Singapore. *Learning Environments Research, 1,* 199-229.

Goh, S.C., Young, D.J., & Fraser, B.J. (1995). Psychosocial climate and student outcomes in elementary mathematics classrooms: A multilevel analysis. *Journal of Experimental Education, 64*, 29-40. Doi:10.1080/00220973.1995.9943793

Goodenow, C. (1993). Classroom belonging among early adolescent students: Relationships to motivation and achievement. *Journal of Early Adolescence, 13*(1), 21-43.

Guthrie, J. T. & Cox, K. E. (2001). Classroom Conditions for Motivation and engagement in reading. *Educational Psychology Review, 13*(3), 283-302.

Guthrie, J. T., Hoa, L. W., Wigfield, A., Tonks, S. M., Humenick, N. M. & Littles, E. (2007). Reading motivation and reading comprehension in the later elementary years. *Contemporary Educational Psychology, 32*, 282-313.

Hamann, D. L. et. al.(1990). Classroom environments as related to contest ratings among high school performing ensembles. *Journal of Research in Music Education,38(3)*, 215-224.

IBM Corp. Released 2012. IBM SPSS Statistics for Windows, Version 21.0. Armonk, NY: IBM Corp.

Kelly, M. J., & Decker , E. O. (2009). The current state of motivation to read among middle school students. *Reading Psychology*, *30*, 466-485.

Klem, A. M., & Connell, J. P. (2004). Relationships matter: Linking teacher support to student engagement. *Journal of School Health, 74* (7), 262-273.

Knight, S. L. (1991). The effects of students' perceptions of the learning environment on their motivation in language arts. *Journal of Classroom Interaction, 25(2)*, 19-23.

Koth, C. W., Bradshaw, C. P., & Leaf, P. J. (2008). A multilevel study of predictors of student perceptions of school climate: The effect of classroom-level factors. *Journal of Educational Psychology, 100*(1), 96-104.

LaRocque, M. (2008). Assessing perceptions of the environment in elementary classrooms: The link with achievement. *Educational Psychology in Practice*,*24*(4), 289-305.

Lau, K. (2009). Reading motivation, perceptions of reading instruction, and reading amount: a comparison of junior and senior secondary students in Hong Kong. *Journal of Research in Reading*, *32*(4), 366-382.

Law, Y. (2008). The relationship between extrinsic motivation, home literacy, classroom instructional practices, and reading proficiency in second-grade Chinese children. *Research in Education*, *80*(1), 37-51.

Logan, S. & Medford, E. (2011). Gender differences in the strength of association between motivation, competency beliefs and reading skill. *Emotional Research, 53*(1), 85-94.

McGeown, S., Goodwin, H., Henderson, N. &Wright, P. (2012). Gender differences in reading motivation: Does sex or gender identity provide a better account? *Journal of Research in Reading, 35*(3), 328-336.

Mucherah, W. (2008). Classroom climate and students' goal structures in high school biology classrooms in Kenya. *Learning Environment Research, 11*, 63-81. doi: 10.1007/s10984-007-9036-x

Mucherah, W., & Yoder, A. (2008). Motivation for reading and middle school students' performance on standardized testing in reading. *Reading Psychology*, *29*(3), 214-235.

Mucherah, W. & Herendeen, A. (2013). Motivation for reading and upper primary school students' academic achievement in reading in Kenya. *Reading Psychology,34*, 569-593. doi: 10.1080/02702711.2012.664249

Mucherah, W., & Ambrose-Stahl, D. (2014). Relation of Reading Motivation to Reading Achievement in the 7th grade students from Kenya and the United States. *International Perspectives in Psychology*: *Research, Practice, Consultation, 3*(3), 154-166. DOI: 10.1037/ipp0000012

Patrick, H., Ryan, A. M., & Kaplan, A. (2007). Early adolescents' perceptions of the classroom social environment, motivational beliefs, and engagement. *Journal of Educational Psychology, 99*(1), 83-98. DOI: 10.1037/0022-0663.99.1.83

Phillips, J. (2003). Powerful learning: Creating learning communities in urban school reform. *Journal of Curriculum and Supervision, 18*(3), 240-258.

Preacher, K.J. & Hayes, A.F. (2008). Asymptotic and Resampling Strategies for Assessing and Comparing Indirect Effects in Multiple Mediator Models. *Behavior Research Methods, 40*, 879-891.

Reyes, M. R., Brackett, M. A., Rivers, S. E., White, M., & Salovey, P. (2012). Classroom emotional climate, student engagement, and academic achievement. *Journal of Educational Psychology*, *104*(3), 700-712.

Ryan, A., & Patrick, H. (2001). The classroom social environment and changes in adolescents' motivation and engagement during middle school. *American Educational Research Journal, 38*(2), 437-460.

Ryan, R. M., & Deci, E.L. (2000). Intrinsic and extrinsic motivation: Classic definitions and new directions. *Contemporary Educational Psychology, 25*, 54-67.

Stornes, T., Bru, E. & Idsoe, T. (2008). Classroom social structure and motivational climates: On the influence of teachers' involvement, teachers' autonomy support and regulation in relation to motivational climates in school classrooms. *Scandinavian Journal of Educational Research, 52*(3), 315-329.

Trickett, E. J., & Moos, R. H. (1995). *A social climate scale: Classroom environment scale manual* (3rd ed.). Palo Alto, CA: Consulting Psychologist Press.

Unrau, N., & Schlackman, J. (2006). Motivation and its relationship with reading achievement in an urban middle school. *The Journal of Educational Research*, *100*(2), 81-101.

US Department of Education. (2012). *Digest of Education Statistics* 2011 (NCES 2012-001). Washington, DC: U.S. Government Printing Office. Retrieved from http://nces.ed.gov/pubs2012/2012001.pdf

Vedder, P., Kouwehoven, C., & Burk, W. J. (2009). Classroom climate and students goal preferences: A cross-cultural comparison. *Scandinavian Journal of Psychology, 50*(2), 143-150. doi:10.111/j/1467-9450.2008.00691.x

Wang, M. & Holcombe, R. (2010). Adolescents' perceptions of school environment, engagement, and academic achievement in middle school. *American Educational Research Journal, 47*(3), 633-662. doi: 10.3102/0002831209361209

Walberg, H. J. (Ed.). (1979). Educational environments and effects: Evaluation, policy, and productivity. Berkley, CA: McCutchan.

Wigfield, A., & Guthrie, J.T. (1995). *Dimensions of children's motivations for reading: An initial study* (Research Rep. No. 34). Athens, GA: National Reading Research Center.

Wigfield, A., & Guthrie, J. T. (1997). Relations of children's motivation for reading to the amount and breadth of their reading. *Journal of Educational Psychology, 89*, 420-432.

Wigfield, A.,Guthrie, J. T., Perencevich, K. C., Taboada, A., Klauda, S. L., Mcrae, A., & Barbosa, P. (2008). Role of reading engagement in mediating effects of reading comprehension instruction on reading outcomes. *Psychology in the Schools, 45*(5), 432-445.

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Opinions of Greek Pre-Service Teachers about Morning Prayer in Greek Schools

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Abstract. The current paper discusses the opinions of undergraduate students concerning the management of religious diversity in the classroom. The purpose of this research is to explore students' views on: The existence of prayer and churchgoing in school, the importance of religious education and celebration of religious festivals and the relations between teachers and parents of another religion and also with their community. The selection of measuring undergraduates' views was made based on the fact that they are future teachers on one hand and, on the other hand, that there are not any studies concerning religious diversity as seen by future teachers. As an overall conclusion, the participants appear to have a positive and active attitude concerning religious diversity in schools. The research findings regarding the individual questions point out interesting and radical views on behalf of the undergraduates.

Keywords: religious education; Greece; undergraduate students' opinions; religious diversity

Introduction

Nowadays Greece, because of changing demographics, has become a country where increasing cultural diversity challenges traditional politics of religion. As a consequence, teachers are likely to see an increase number of students of diverse religious backgrounds. It should be noted that Greece is a country where religion is considered fundamental to the constitution of the nation-state. Article 3 of the Constitution provides that "the prevailing religion in Greece is the religion of Eastern Orthodox Church of Christ" (Sotirelis, 1998; Efstathiou, Georgiadis, Zisimos, 2008; Zambeta, 2008). In this way, the development of religious consciousness is effected in the interpretative light of "prevailing religion". And the question is: "*How does a Christian 'civil religion' work in a society*

that gradually discovers itself to be a multicultural and multireligious nation?" (Skeie, 2006:19-32; Derman-Sparks, 2004).

Literature review

Despite this increased cultural diversity, little research is available on the challenges that teachers face every day in order to manage with this diversity and to resolve possible cultural conflicts (Huijbregts; Leseman, Tavecchio, 2008:233-244). It is an important indicator that "*children's religious faith is disregarded, is the fact that it seldom is the focus of empirical study. Despite its social relevance and considerable interest as a topic, religion has been neglected as a research topic"* (Renck; Peyton & Renck; Jalongo, 2008:301-303; Zambeta, 2000; Subedi, 2006:227-238) agrees mentioning that "*discussions about religious aspects of diversity are often absent from research. Topics such as religious forms of prejudice and religious dimensions of identities have not been fully explored in the context of teacher education"*. Moreover, she argues for the need to emphasize topics of religious diversity in teacher education programs, since teachers will undoubtedly teach those who come from diverse religious backgrounds. The author proposes that teacher educators include religion when teaching about social differences, particularly how religious dimensions of prejudice operate in schools.

It has been supported that understanding and respecting young children's religious background is an important way of respecting diversity. Many professionals tend to ignore the significant influence of religious belief and training during the early childhood years (Renck; Peyton & Renck; Jalongo, 2008:301-303; Keast, 2007; Zambeta, 2008; Zambeta 2000; Coulby, 2008). A fundamental point in the discussion about religious diversity is the fact that "*educating children together is not a guaranteed antidote to racism"*. And that is because "*racial integration just by being with others, has been found to be ineffective"* (McCreery, Jones, and Holmes, 2007: 203-219; Zambeta, 2003).

Prior research on marginalized groups has shown that teacher's limited experience or understanding of their student's cultures may lead to negative and psychological outcomes in children (Selcuk, Ryce and Mir, 2009: 463–473). It is obvious that teachers and, more specifically, students should be having knowledge on different religions' issues. As Wills mentions, to make meaningful changes in schools, "*teachers educators must develop practices that assist novice teachers in becoming more aware of the biases and prejudices they may have about the students are trained to teach"* (Subedi, 2006:227-238). It is certain that teachers bring their religious perspective into classrooms, and the subject areas they teach may reflect their viewpoints on religious issues. For this reason, Subedi argues that religious aspects of diversity ought to be an important topic of conversation within teacher education since teachers' experiences and prior knowledge shape the nature of curricula they incorporate in classrooms (Subedi, 2006:227-238).

There is a need to incorporate discussions about religious diversity in the context of teacher education. The topic of religious differences has not been fully included in the larger conversation about diversity and multicultural education (Subedi, 2006:227-238). Especially in Greece, it remains an issue that is yet to be

fully researched in the area of teacher education. (Zambeta, 2000; Efstathiou, Georgiadis, Zisimos, 2008).

Even the quality of home-school interactions has significant impact on pupils, especially in the first years of schools. The researchers use the terms "*cultural discontinuity*", "*cultural congruence*" and "*cultural mismatch*" to describe cases where the culture of education has significant differences from that of parents and children. Teachers are likely to misinterpret children's behavior when they do not understand or have limited exposure to the cultural norms of their pupils. Besides, potential value differences between teachers and parents may also play a role in how teachers view children's behavioral problems. For example, teachers may misinterpret student's behavior, when teachers do not understand or have limited exposure to the cultural norms of their students (Selcuk, Ryce and Mir, 2009: 463–473).

Ignoring religious differences and allowing such behaviors, however, neither avoids controversy nor encourages the development of dispositions for tolerance among children. Perhaps the best way to deal with such teasing is to know the reasons for tradition and to share this information with children in a respectful, open environment (Hoot, Szecsi, & Moosa, 2003: 85-90).

Teachers' profession espouses that every child has the right to grow and develop in an environment of mutual respect and justice regardless of race, gender, ethnic, origin or religion (Hoot, Szecsi, & Moosa, 2003: 85-90). Pang (2005) points out that "*teachers can play a key role in helping all students learn about religious diversity and religious forms of identities so that students can become open-minded and respectful of differences"* (Subedi, 2006: 227-238).

A significant element of religious education in school is prayer. Especially the Morning Prayer in Greek schools is not only a custom, but also an obligation that is held every day. However, a remarkable percentage of kindergarten teachers mainly do not cope with this specific issue in a dogmatic way, but they try to exercise a multicultural pedagogic in their classrooms (Tsioumis, Kyridis & Konstantinidou, 2013:65-74; Romanovski, 2002).

"The practice of offering prayers in public schools is as old as the public school itself, criticism of this practice has a long history as well" as Ethan Fishman points out referring to the American public school system (Ethan, M., Fishman, E., 2006:269-278). The same condition applies to the Greek educational system. Besides, prayer has been shown that is a valued aspect of life for children (Mountain, V., 2006:295-305). However, "*the empirical study of prayer remained an underdeveloped field of research, at least until the mid-1990. Since then there have been very few studies on prayer relating to school children. If we look for studies concentrating on the issue of prayer at an early school age we find that there are almost none" (*Kaščák & Gajňáková, 2012: 377-392).

In addition, a fundamental point in the discussion about religious education is the fact that "*the school calendar is based around the Christian calendar and that this have a negative impact on the curriculum, particularly in relation to activities that are*

*provided around the times of Easter and Christmas" (*McCreery, Jones, and Holmes, 2007: 203-219; Derman-Sparks, 2004; Skeie, 2006). This is indicative that such festivals have great dominance over the curriculum.

Regarding curricula and social intervention programs it appears that they should begin in early childhood before children begin to use stereotypes in peer situations, particularly when children from other cultural and ethnic backgrounds play together (Brenick, Killeh, et al., 2010: 886-911).

Programs that approach the particularities of religions help in prevention of social exclusion phenomena in the classroom. More specifically, one of the best ways to address children's inquiries about religion is "*to provide developmentally appropriate literature experiences that extend children's knowledge base, cultivate their critical thinking skills, and develop their tolerance for religion based differences" (*Zeece, 1998: 243-246). Unfortunately, the lack of candid conversation about religions, particularly concerning multiple perspectives on beliefs and practices produces stereotypes (Subedi, 2006: 227-238; Kunzman, 2006).

Free development of religious consciousness of children helps children "*develop a sense of identity and belonging, which in turn helps them to develop their confidence and self-esteem so that they can reach their full potential" (*McCreery, et al, 2007: 203-219). Besides, the convention on the Rights of the Child in Article 29 stated that the development of children's spirituality was a right (Mountain, 2006: 295-305). As concerns Greece, "*religious freedom in Greece is consolidated in Article 13 of the Constitution and relevant are the provisions of Articles 3 and 16 § 2 of the Constitution, and Article 9 of the European Convention on Human Rights, which has been ratified (legislative degree 53/1974) and it prevails over any conflicting provision of law*" (Chrysogonos, 2010, Available on the website: http://www.tovima.gr/opinions/article/?aid=312788, Zambeta 2000).

As Alison Graham mentions "*the most important condition for achieving equal opportunities in education is the creation of an ethos in which self esteem and mutual respect are prominent shared values. Responsibility for children's affective development has always had a high priority in primary education (*Graham, 1993:28-33).

Research objectives-research questions

The current paper discusses the undergraduate students' opinions about the management of religious education in the classroom. The purpose of this research is to explore undergraduate's views on: a) the existence of prayer and churchgoing in school and the celebration of religious festivals, b) educational management of religious diversity and c) the relations between teachers and parents of another religion and also with their community. The selection of measuring undergraduates' views was made based on the fact that they are the future teachers on one hand and, on the other hand, that there are not any studies about religious diversity as seen by undergraduates in Greece.

Methodology-Sample

The methodology that was followed was that of a questionnaire, which was designed for the purpose of the research. Its questions cover all the aspects of the study. The reliability of the questionnaire was measured. Subsequently, it was tested at the 25% of the sample. The questionnaire was weighted by measuring its reliability. The indicator of internal validity of the tool demonstrated that Cronbach's *a* on the total of the questionnaire was 0.795, as it is described below.

The research was conducted in the winter of 2013-2014. The sample comprised 262 undergraduate students coming from 3 different departments of Aristotle University of Thessaloniki: the department of Faculty of Education (school of primary and school of early childhood education) and the department of Drama. It is obvious that the size and the kind of the sample do not allow a projection to either a more total population size or a population of more general characteristics.

The sample consisted of undergraduate students that were selected a) due to their young age, b) because they are not any courses relating to religious issues in universities, but mainly to general interest. Furthermore, religious issues preoccupy not only active teachers, but future teachers and the society as well. It is important to record future teachers' opinions about the management of religious diversity. The questionnaire, which was distributed and answered in written, was consisted of closed questions/statements, 22 in total. It consisted of the following categories of questions:

A) Questions pertaining to personal and demographic characteristics which were: gender, maternal and paternal occupation (freelance scientific occupations, public employees, private employees, freelancers/artisans, tradespersons, workers, farmers and housewives), maternal and paternal level of education (illiterate, primary school graduate, high school graduate, Technological Institute graduate, University graduate and Master's holder), institution of attendance (Higher Institution of Education or Higher Technological Institution of Education), degree of urbanity (Athens/Thessaloniki, capital of prefecture, semi-urban or rural area), field of studies (school of primary education, school of early childhood education and the department of Drama) and ideological integration (extreme right-wing, right, centre, left and extreme left-wing).

B) 22 closed questions/statements (Cronbach's alpha=0.795), regarding student's attitudes towards religious diversity. The level of the agreements to these statements is expressed by the using of a 5-grade Likert scale (1=strongly disagree, 2=disagree, 3=neutral, 4=agree, 5=strongly agree).

Results

The indicator of internal validity of the tool demonstrated that Cronbach's *a* on the total of the questionnaire was 0.795. Once the answers were processed by the Statistical Package for the Social sciences (SPSS), the following results were obtained.

Table 1. The Sample: Demographic and Social Characteristics

Gender	**f**	%			
Male	26	9,9			
Female	236	90,1			
Father's profession	**f**	%	**Mother's profession**	**f**	%
Freelance professional	33	12,6	Freelance professional	16	6,1
Civil servant	80	30,5	Civil servant	75	28,6
Private sector employee	66	26	Private sector employee	50	19,1
Freelance technician	44	16,8	Freelance technician	9	3,4
Trader	11	4,2	Trader	5	1,9
Blue collar worker	6	2,3	Blue collar worker	8	3,1
Farmer	18	6,9	Farmer	9	3,4
Domestic duties	2	,8	Domestic duties	90	34,4
Father's education	**f**	%	**Mother's education**	**f**	%
Illiterate	1	,4	Illiterate	4	1,5
Elementary School Graduate	22	8,4	Elementary School Graduate	15	5,7
Secondary School Graduate	98	37,4	Secondary School Graduate	115	43,9
Technological Institute Graduate	64	24,4	Technological Institute Graduate	56	21,4
University Graduate	66	25,2	University Graduate	64	24,4
Post Graduate Degree	11	4,2	Post Graduate Degree	8	3,1
Field of Studies	**f**	%	**Institution of attendance**	**f**	%
School of Primary Education	188	71,8	Higher Institution of Education	254	97
School of Early Childhood Education	54	20,6	Higher Technological Institution of Education	8	3,1
Department of Drama	20	7,6	**Ideological Integration**	**f**	%
Residence	**f**	%	Extreme Right-wing	4	1,5
Major urban area	169	64,5	Right	45	17,2
Urban area	41	15,6	Centre	111	42,4
Town	35	13,4	Left	53	20,2
Rural area	17	6,5	Extreme Left-wing	10	3,8
			Without answer	39	14,9

Gender

Out of the students that were asked, 236 were females (90,1%) and 26 were males (9,9%).

Field of Studies

Of the 3 university departments that participated in the research, 188 students came from the School of Primary Education (71,8%), 54 students were of the School of Early Childhood Education (20,6%) and 20 students came from the Department of Drama (7,6%).

Institution of attendance

254 students came from the Higher Institution of Education (97%) and 8 came from Higher Technological Institution of Education (3,1%).

Degree of urbanity
As to the urbanity of the students that comprised our sample, 169 students (64,5%) came from Athens or Thessaloniki, 41 (15,6%) came from the capital of a prefecture, 35 students (13,4%) were of a semi-rural area and 17 (6,5%) came from a rural area.

Paternal occupation
Regarding the occupation of the students' fathers in the sample, 12,6% are in freelance scientific professions, 30,5% are employees in the public sector, 26% are in the private sector, 16,8% are freelance technical professionals, 4,2% are tradespersons, 2,3% are workers, 6,9% are farmers and 0,8% do the housework.

Maternal occupation
Regarding the occupation of the students mothers in the research sample, 6,1% are freelance scientific professionals, 28,6% are employed in the public sector, 19,1% are in the private sector, 3,4% are freelance technical professionals, 1,9% are in trading, 3,1% are workers, 3,4% are farmers and the remaining 34,4% are evidently unemployed housewives.

Paternal education
In relation to the education of the students' fathers in the research sample, 0,4% are illiterate, 8,4% are primary school graduates, 37,4% are high school graduates, 24,4% have graduated from a higher technological institution, 25,2% are university graduates and 4,2% hold a graduate diploma.

Maternal education
In relation to the education of the students' mothers in the research sample, 1,5% are illiterate, 5,7% are primary school graduates, 43,9% are high school graduates, 21,4% have graduated from a higher technological institution, 24,4% are university graduates and 3,1% hold a graduate diploma.

Ideological integration
Where the ideological integration of the participating students is concerned, 1,5% belong to the extreme right integration, 17,2% are right-wingers, 42,4% of the students belong to the centrists, 20,2% are left-wingers, 3,8% are extreme left-wingers. It should be stressed, however, that a considerable number of students (14,9%) were neutral to this statement.

Table 2.
1=strongly disagree, 2=disagree, 3=neutral, 4=agree, 5=strongly agree

Nr	Statement	1	2	3	4	5
1	I pray with children in the classroom	11,5	3,8	17,6	30,7	36,4
2	I think it is important the prayer to be neutral regarding religious content	6,9	7,3	21,5	38,3	26,1
3	I believe that religious education is an important part of education	5,3	10,3	26,3	32,4	25,6

4	Children's churchgoing is necessary for their religious education	12,3	16,5	25,7	29,9	15,7
5	I think that children's churchgoing contributes to the maintenance of Greco-Christian culture	10,7	12,6	29,8	30,5	16,4
6	I believe that children should be allowed to make their own prayer	3,1	2,7	24,5	43,3	26,4
7	I think that prayer has no place in school	47,3	26	15,3	6,1	5,3
8	I believe that different religion should be recognized at school	1,1	3,4	10,3	32,4	52,7
9	I think that religion is an important part of the identity of children	3,4	6,1	20,7	33,0	36,8
10	I think that the administration of education should take care of all the children to pray in their religion	6,1	5,7	24,4	38,5	25,2
11	I believe that it is important to keep alive the Orthodox part of our culture in the school premises	9,2	5,4	26,1	36,8	22,6
12	The reference of religious feasts of children of another religion in the classroom helps to enhance their self-esteem	2,7	5,3	22,5	33,6	35,9
13	I think that feasts which bring children together with Orthodox tradition are important	5,0	7,3	23,8	41,4	22,6
14	I think that children of another religion are led to social exclusion in the classroom	5,3	16,8	27,1	35,5	15,3
15	I think that collaborating with parents of another religion is a fundamental prerequisite empowerment/inclusion of their children	1,1	4,2	12,2	38,5	43,9
16	I believe that it is important the discussion with religious communities on issues relating to religious education of children of another religion	2,7	7,6	30,9	32,8	26
17	I think that it is important to collaborate with religious communities	4,6	12,6	38,5	28,6	15,6
18	I encourage the essential interaction between children of different religions	0,4	5,3	15,3	39,3	39,7
19	Free development of religious consciousness of children is necessary for free development of their personality	1,9	5,0	9,5	40,5	42,7
20	I think that programs that approach the particularities of religions help in prevention of social exclusion phenomena in the classroom	2,7	2,3	16,4	38,9	39,7
21	I discuss with parents of another religion their opinion for their children's	2,7	3,8	11,5	35,1	46,9

	participation in Christian Orthodox feasts					
22	I discuss with parents of another religion about issues of religious education of their children	2,3	1,5	13,4	38,2	44,3

Table 3. Means and Standard Deviation

Nr	Statement	Mean	S.D.
1	I pray with children in the classroom	3,7663	1,29606
2	I think it is important the prayer to be neutral regarding religious content	3,6935	1,13930
3	I believe that religious education is an important part of education	3,6260	1,13012
4	Children's churchgoing is necessary for their religious education	3,2031	1,24381
5	I think that children's churchgoing contributes to the maintenance of Greco-Christian culture	3,2939	1,19765
6	I believe that children should be allowed to make their own prayer	3,8736	,93814
7	I think that prayer has no place in school	1,9618	1,16398
8	I believe that different religion should be recognized at school	4,3206	,87771
9	I think that religion is an important part of the identity of children	3,9349	1,06318
10	I think that the administration of education should take care of all the children to pray in their religion	3,7099	1,09326
11	I believe that it is important to keep alive the Orthodox part of our culture in the school premises	3,5824	1,16599
12	The reference of religious feasts of children of another religion in the classroom helps to enhance their self-esteem	3,9466	1,01945
13	I think that feasts which bring children together with Orthodox tradition are important	3,6935	1,05517
14	I think that children of another religion are led to social exclusion in the classroom	3,3855	1,09696
15	I think that collaborating with parents of another religion is a fundamental prerequisite empowerment/inclusion of their children	4,1985	,89202
16	I believe that it is important the discussion with religious communities on issues relating to religious education of children of another religion	3,7176	1,01916
17	I think that it is important to collaborate with religious communities	3,3817	1,03914
18	I encourage the essential interaction between children of different religions	4,1260	,88591
19	Free development of religious consciousness of children is necessary for free development of their personality	4,2443	1,44154
20	I think that programs that approach the particularities of religions help in prevention of social exclusion	4,1069	,94079

	phenomena in the classroom		
21	I discuss with parents of another religion their opinion for their children's participation in Christian Orthodox feasts	4,1985	,97021
22	I discuss with parents of another religion about issues of religious education of their children	4,3550	2,50057

Of particular interest is the Mean value in the statements "*I discuss with parents of another religion about issues of religious education of their children"* (Mean= 4,3550) and *"I believe that different religion should be recognized at school"* (Mean=4,3206), which indicate that undergraduates show great consideration for parents' of another religion opinions and they also realize the importance of recognition of all the religions at school. An outstanding 82,5% and 85,1% respectively agree with these statements, while only 3,8% and 4,5% disagree. Furthermore, it is interesting the Mean value in the statements: "*Free development of religious consciousness of children is necessary for free development of their personality*" (Mean= 4,2443), "*I think that collaborating with parents of another religion is a fundamental prerequisite empowerment/inclusion of their children"* (Mean=4,1985), *"I discuss with parents of another religion their opinion for their children's participation in Christian Orthodox feasts"* (Mean=4,1985) , "*I encourage the essential interaction between children of different religions*" (Mean=4,1260) and "*I think that programs that approach the particularities of religions help in prevention of social exclusion phenomena in the classroom"* (Mean=4,1069), that demonstrate that undergraduate students perceive what children need in order to grow up and have a balanced personality. The majority of undergraduates agree with the statements above.

Undergraduates express the lowest degree of agreement in the question "*I think that prayer has no place in school*" (Mean=1,9618), which indicate that undergraduates have different opinions about the prayer in school, although an outstanding 73,3% of the students disagrees with this statement.

Correlation results

A ANOVAs test with one variable followed, so as to draw conclusions regarding how a factor affects a quantitative variable. In this research we used an independent variable: a series of factors from the demographic data. When the results appeared, the following factors were found to be of influence;

- The variable "Gender"
- The variable "Paternal occupation"
- The variable "Maternal occupation"
- The variable "Father's education"
- The variable "Mother's education"
- The variable "Residence"
- The variable "Institution of attendance"
- The variable "Field of studies"
- The variable "Ideological integration"

Regarding gender, women seem to have more open mind, as 66% of them (F=3,846, df=2, sig=0,023) believe that it is important the prayer to be neutral

regarding religious content and 71,9% (F=3,226, df=2, sig=0,041) believe that children should be allowed to make their own prayer. The corresponding percentages for men were 42,3% and 50% respectively. Moreover, 83,5% of women undergraduates and 73,1% of men undergraduates think that they should discuss with parents of another religion about issues of religious education of their children (F=98,571, df=2, sig=0,000) and they believe that, collaborating with parents, is a fundamental prerequisite empowerment/inclusion of their children with a percentage of 84,3% for women undergraduates and 65,4% for men undergraduates (F=4,817, df=2, sig=0,009). They also encourage the essential interaction between children of different religions (80,9% women and 61,6% men students, F=3,566 df=2, sig=0,030).
Undergraduate students whose fathers' occupation are farmer, freelancers/artisans, freelance scientific occupation, private employee or do the housework believe (F=2,984, df=7, sig=0,005) that different religions should be recognized at school, that free development of religious consciousness of children is necessary for free development of their personality (F=2,410, df=7, sig=0,021) and that children of another religion are led to social exclusion in the classroom (F=2,639, df=7, sig=0,012), excepting undergraduates whose fathers' occupation is farmer, that deny this phenomenon and also that programs that approach the particularities of religions help in prevention of social exclusion phenomena in the classroom (F=2,688, df=7, sig=0,011).

Furthermore, concerning the variable about mothers' occupation, it is indicative that only 66% of undergraduates whose mothers are farmers believe that different religion should be recognized at school (F=2,577, df=7, sig=0,014) and none student, whose mother occupation is trader, believe that the administration of education should take care of all the children to pray in their religion (F=2,131, df=7, sig=0,041). It is remarkable that 50% of undergraduates whose mothers are workers and 60% of undergraduates whose mothers are traders are neutral. Undergraduates whose mother occupation is worker or farmer believe that it is important to keep alive the Orthodox part of our culture in the school premises, but 11% of undergraduates whose mother is freelance scientific occupation do not agree and 66,7% of them are neutral.

ANOVAs analysis showed that undergraduates whose father is University graduate and master holder cannot decide whether prayer should be neutral regarding religious education (F=2,849, df=6, sig=0,011). Undergraduates whose father is illiterate or primary school graduate neither agree nor disagree whether they should encourage the essential interaction between children of different religions (F=2,424, df=6, sig=0,027) and whether is important the discussion with religious communities on issues relating to religious education of children of another religion (F=2,171, df=6, sig=0,046).

Undergraduates whose mother is illiterate demonstrate a conservatism in what concerns the prayer in the classroom (F=2,384, df=7, sig=0,022), the necessity of children's churchgoing for their religious education (F=2,326, df=7, sig=0,026) and the importance of feasts which bring children together with Orthodox tradition (F=2,102, df=7, sig=0,044). Nevertheless, they cannot decide whether is

important to collaborate with religious communities or not (F=2,064, df=7, sig=0,048). No matter what the maternal level of education, all undergraduate students think that they should discuss with parents of another religion about issues of religious education of their children (F=10,368 df=7, sig=0,000).

As to the "Residence" variable, it seems that undergraduates who live in semi-urban or rural area produce the highest value of agreement on the maintenance of the Orthodox part of our culture in the school premises (F=3,073, df=3, sig=0,028). The analysis showed that undergraduates of the Department of Drama are quite radical and they do not give great importance to religion and its presence in the school premises. Moreover, undergraduates of Drama do not believe that religion is an important part of children's identity (F=24,851, df=2, sig=0,000).

Finally, undergraduate students, whose ideological integration is extreme right and right-wing, defend their religion and the maintenance in school with all its aspects. Nevertheless, 50% of them neither agree nor disagree with the recognition of different religion in school (F=3,973, df=5, sig=0,002). Half of them agree and half of them disagree with the social exclusion of children of another religion (F=3,876, df=5, sig=0,002). Half of right-wing undergraduates also cannot decide whether children's churchgoing is important for their religion education or not (F=5,244, df=5, sig=0,000). On the other hand, extreme left undergraduates disagree with the presence of religion in school (F=9,153, df=5, sig=0,000) and they do not place a high value on religion. A great amount of them are indecisive about religion issues. However, extreme left and centre-wing undergraduates are convinced that different religions should be recognized at school (F=3,973, df=5, sig=0,002) and 90% of extreme left undergraduates believe that children of another religion are led to social exclusion in the classroom (F=3,876, df=5, sig=0,002).

Discussion

One field of the research concerned prayer in school. From the subjects' responses it appears that undergraduates are not against the existence of prayer in school. They believe that prayer should be neutral regarding religious content and that every pupil should be allowed to make its own prayer in school. "*Prayer is too important, too sacred, and too intimate to be scheduled by government*" *(*Ethan, M., Fishman, E., 2006:269-278; Romanowski M., 2002) However, we cannot abolish prayer from school because, as Fishman declares, "*public schools without prayer will serve to inculcate or establish what Senator Helms himself calls "the religion of secularism"*. This policy might "*construct an equal or even greater threat to traditional religion- a secular religion or 'religion of the State'*" (Ethan, M., Fishman, E., 2006:269-278; Coulby 2008). "*The fear is not unfounded. It is possible that, by consciously going out of their way to omit religion from their curricula, public schools begin to teach irreligion*" (Ethan, M., Fishman, E., 2006:269-278). This has as result in religious beliefs and values to be subtly but surely undermined in public education.

Besides, prayer is found to be a strong formal and symbolic element in school socialization. Prayer sometimes even emerges as a specific part of the learning process, which means that it is part of the school work itself (Kaščák & Gajňáková, 2012: 377-392; Romanovski, 2002).

At this point, it is useful to mention the "*interreligious prayer*", which means praying together using the same words, instead of "*multireligious prayer*". After all, there is only one God, and our differing concepts about the one God shouldn't prevent us from praying together (D' Costa, 2013:1-14).

Regarding children's churchgoing, 45,6% of undergraduates believe that it is necessary for their religious education and 46,7% of them that it contributes to the maintenance of Greco-Christian culture. It is indicative that 29,8% cannot decide whether they agree or disagree with the last statement. Subjects' responses illustrate a positive attitude to Christian feasts as they bring children together with Orthodox tradition. However, 82% discuss with parents of another religion their opinion for their children's participation in Christian Orthodox feasts. It should be noted also that a percentage of 69,5% believe that reference of religious feasts of children of another religion in the classroom helps to enhance their self-esteem.

However, a fundamental point in the discussion about religious education is that public schoolchildren are "*a captive audience*", which means that "*their right to free exercise of religion…should be in force at all times and in all places"* (Fishman, 2006:269-278; Gundara, 2014). The majority (85,1%) reports that different religions should be recognized at school, as they support that religion is an important part of children's identity (69,8%). In addition, 83,2% of undergraduates believe that free development of children's religious consciousness is necessary for free development of their personality. This shows that pre service teachers are interculturally sensitive, but without being in a real school.

Another characteristic that should be highlighted is that 78,6% believe that programs that approach the particularities of religions help in prevention of social exclusion phenomena in the classroom. On the contrary, half of them deny that children of another religion are led to social exclusion in the classroom and 79% of them encourage the essential interaction between children of different religions.

It is indicative that they give great importance to the collaboration with parents of another religion as a fundamental prerequisite empowerment and inclusion of their children. Moreover, they discuss with them about issues of religious education of their children. Despite the fact that undergraduates are co-operative with parents, they do not feel like collaborating with religious communities as well. Moreover, they rather feel embarrassment and they cannot decide whether they agree or not.

Conclusions

Nowadays, it is obvious that the most serious current challenge is the preparation of teachers to educate children of different religions more effectively. Teacher preparation should go beyond content knowledge and focus on effective ways to work with diverse students and families. Effective multicultural teacher preparation programs would involve fostering an openness to learn about different cultural groups, developing an awareness of one's own biases, and adhering to professional ethics (Selcuk, Ryce and Mir, 2009: 463–473; Gundara, 2014). Banks (2004) argues that the infusion of diverse perspectives opens up ways to make visible and also to legitimize cultural knowledge that has been omitted in the past (Subedi, 2006: 227-238). Fullan claims that school improvement process involves three phases: initiation, implementation, and institutionalization. The entry refers to the process that leads to the decision to approve the school or to make changes. The application relates to attempts to put an idea or reform into practice and the institutionalization refers to building innovation into everyday practice (Choi Ho Wa, 2010: 263-284). As to the undergraduates' views, it is without a doubt that they acknowledge the value of respecting religious diversity in school. It should be stressed, however, that two fundamental questions remain. The first is whether public school could provide for all groups' needs and the second is to what extent can the administration of public school to fund a curriculum with aims and values very different from the majority view. How can public school give "voice" to all religions and how do we prepare our students teachers to consider the perspectives of parents and children of different religion? (McCreery, Jones, and Holmes, 2007: 203-219). Besides, the cultural aspects of society cannot be fully managed by the state even if there are many basic questions of rights and power that have to find political solutions. Cultural differences are boundaries that can be contested, negotiated and changed, and we can hope for them to be respected, recognized and discussed (Skeie, 2006).

References

Brenick, A., Killeh, M., Lee-Kim, J., Fox, N., Leavitt, L., Raviv, A., Masalha, S., Murra, F. & Al-Smadi, Y. (December 1, 2010). "Social Understanding in Young Israeli-Jewish, Israeli-Palestinian, Palestinian, and Jordanian Children: Moral Judgments and Stereotypes". Early Education & Development 21(6), 886-911

Canda, E. (December 7, 2010). "An holistic approach to prayer for social work practice". Social Thought 16 (3), 3-13

Choi Ho WA, Dora. (2010) "Leadership for School Improvement: Exploring Factors and Practices in the Process of Curriculum Change" Early Education & Development 21(2), 263-284

Chrysogonos, K. "Between the Constitution and Europe". To Vima (January 31, 2010). Available on the website: http://www.tovima.gr/opinions/article/?aid=312788

Coulby D.-Zambeta E. (2008). Intercultural Education, religion and modernity, Intercultural Education, 19(4), 293-295.

Derman-Sparks L., Anti-bias Curriculum:Tools for Empowering Young Children, The National Association for the Education of Young Children, Washington D.C., 1989, Greek Edition, Schedia , Athens 2004.

Cush, Denise. (July 7, 2006). "A suggested typology of positions on religious diversity". Journal of Beliefs & Values: Studies in Religion & Education 15(2), 18-21

Efstathiou I., Georgiadis F., Zisimoz Ap. (2008). Religion in Greek Society at the time of Globalization, Intercultural Education, 19(4), 325-336.

Fishman, E., M. (July 10, 2006). "School prayer: Principle and circumstance in American politics". Religious education: The official journal of the Religious Education Association 77(3), 269-278

Gavin, D' Costa. (2013). "Interreligious prayer between Christians and Muslims". Islam and Christian-Muslim Relations, Vol. 24:1-14

Gilbert D. (2004). Racial and Religious discrimination: The inexorable relationship between schools and the individual, Intercultural Education, 15(3), 253-266.

Graham, A. (1993). "Storytelling and Equal Opportunities in Early Years Education". Early Years: An International Research Journal 13(2), 28-33

Gundara J. , Global and civilizational knowledge: eurocentrism, intercultural education and civic engagements, Intercultural Education, 25(2), 114-127.

Hoot, J., L., Szecsi, T. & Moosa, S. (Winter 2003). "What Teachers of Young Children Should Know About Islam?". Early Childhood Education Journal 32(2), 85-90

Huijbregts, S., K., Leseman, P., P., M., Tavecchio, L., W., C. (2008). "Cultural diversity in center-based childcare: Childrearing beliefs of professional caregivers from different cultural communities in the Netherlands". Early Childhood Research Quarterly 23,233-244

Kaščák, O., & Gajňáková, S. (September 26, 2012). "Ora et labora- the use of prayer in schooling. Pedagogy, Culture & Society 20(3): 377-392

Keast J. (ed.), Religious Diversity and Intercultural Education: A Reference Book for Schools, Strasbourg: Council of Europe Publishing 2007.

Kunzman, Robert. (December 4, 2006). "Imaginative Engagement with Religious Diversity in Public School Classrooms". Religious Education: The official journal of the Religious Education Association 102(4), 516-531

McGee, G., & Caplan, A. (December 19, 2007). "Playing [with] God: Prayer is Not a Prescription". The American Journal of Bioethics 7(12), 1

Manning, C. (January 26, 2010). "Not even for the Lord's Prayer". Melbourne Studies in Education 47(1-2), 125-136

McCreery, E, Jones, L. and Holmes, R. (2007). "Why do Muslim parents want Muslim Schools?" Early Years: An International Research Journal 27(3), 203-219

Mountain, V. (August 16, 2006). "Prayer is a positive activity for children-a report on recent research". International Journal of Children's Spirituality 10(3), 295-305

Peyton Mel., Jalongo M., Make me an Instrument of your Peace. Honoring Religious Diversity and Modeling Respect for Faiths Though Children's Literature, Early Childhood Education Journal, 35, 301-303.

Renck, Melissa, Peyton & Renck, Mary, Jalongo. (February 8, 2008). "Make Me an Instrument of Your Peace: Honoring Religious Diversity and Modeling Respect for Faiths Through Children's Literature". Early Childhood Educational Journal 35(4), 301-303

Romanowski M., Is School Prayer the Answer? The Educational Forum, 66(2), 154-161.

Selcuk R. Sirin, Patrice Ryce and Madeeha Mir. (2009). "How teachers' values affect their evaluation of children of immigrants: Findings from Islamic and public schools". Early Childhood Research Quarterly 24, 463–473

Skeie, G. (January, 2006). "Diversity and the political function of religious education". British Journal of Religious Education 28(1), 19-32

Sotirelis, G. (1998) Religion and education. According to the Constitution and the European Convention. 3rd edition. Athens: Sakkoula

Subedi, B. (2006). "Preservice Teachers' Beliefs and Practices: Religion and Religious Diversity". Equity & Excellence in Education 39, 227-238

Tsioumis, K., Kyridis, A. & Konstantinidou, Z. (May 2013). "The Morning Prayer in Greek Kindergartens as a Field of Exercising Multiculturalism". Journal of Educational and Social research 3(2), 65-74

Xiaoyan L., Fuller Br., Singer J. (2000). Ethnic Differences in Child Care Selection: The Influence of Family Structure, Parental Practices and Home Language, Early Childhood Research Quarterly, 15(3), 357-384.

Zambeta E. (2000). Religion and National Identity in Greek Education , Intercultural Education, 11(2), 145-155.

Zambeta E. (2003). Religion and School. Themelio, Athens (in Greek).

Zambeta E. (2008). Religion, Modernity and Social Rights in Greek Education, Intercultural Education, 19(4), 305-314.

Zeece, P., D. (December, 1998). "Can God Come Here?" Using Religion-based Literature in Early Childhood Settings." Early Childhood Educational Journal 25(4), 243-246

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Bridging the Theory Practice Gap through Clinical Simulations in a Nursing Under-Graduate Degree Program in Australia

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Abstract. The literature is inundated with articles discussing the theory practice gap but is less forthcoming about how to tackle this problem in the university classroom setting. This is an area which presents a recurring dilemma for nursing students and lecturers alike, as the theory at times seems to be distant from the clinical skills that a nurse requires for practice. Simulation is a flexible teaching method that can be adapted to meet both the program requirements and students' learning needs. A simulated environment ensures that the students learn in a safe environment that enables them to repetitively practice until competence is attained. We used simulation as a bridge to link the classroom (theoretical learning) and the clinical workplace (practice learning). The simulation task encouraged the use of critical reasoning and self-reflection, and provided students with opportunities to practice nursing in a controlled learning environment. The feedback we received highlighted enhanced levels of student understanding achieved through the clinical simulations, with indications of improved student preparation for clinical fieldwork.

Keywords: nursing education; simulation; theory-practice gap; clinical skills; undergraduate

Introduction

The literature is awash with articles discussing the theory practice gap (Corlett, 2000; Ousey & Gallagher, 2007; Scully, 2011; Hatlevik, 2012) but is less forthcoming about how to overcome this in classroom settings. Any efforts to address this issue must start with an understanding of some of the key challenges nurse educators face and an awareness of the potential for simulated learning activities to scaffold the students' learning experience in preparation for clinical practice.

The challenges for educators

The gap between nursing theory and nursing practice has been frequently mentioned in the research literature with Sandelands (1990) observing that these two ideas were mutually exclusive. Moreover, students often struggled to see the connection of the holistic grand theorists with the practical world of nursing.

Another dimension to this challenge was that theoretical developments informed by research often ran ahead of clinical practice. The theory practice gap created a tension that moved the profession forward over time – new knowledge led to new practices. From the student perspective the theory practice gap has been noted as demanding and sometimes left them confused and uncertain about their roles and practice (Corlett, 2000; Ousey & Gallagher, 2007).

The changing composition of students with diverse learning needs

The profile of the undergraduate nursing student has changed over the last three to four decades. Today's student nurses come from diverse backgrounds: students with English not as their first language, mature aged students, male and female, students without final year secondary education completion, those with degrees in other disciplines, those working full time and studying part time, in addition to the traditional school leaver (Bradley, Noonan, Nugent & Scales, 2008). Educators need to engage this diverse student group using technology and innovative approaches to teaching that is experiential and builds upon essential professional knowledge and develops skills.

The need to refocus on the primacy of practice

The challenge has been further complicated by the prominence of theoretical aspects of learning, with Rolfe (2006) noting this overemphasis on nursing theory when advocating his model of nursing praxis. The clinical nurse may not even be aware of the debate that goes on about the various nursing theories, technical rationality and nursing praxis, but is very conscious of the quality and practical ability of the nursing students that universities are responsible for. This situation creates an additional tension as the clinical nurses juggle their own patient load while offering support for students; with perceptions on both sides that student's needs are at times neglected (Corlett, 2000).

The need to develop teaching that engages with practice realities

Being able to demonstrate skills in the artificial clinical classroom does not prepare a student for the reality of utilising them with a vulnerable patient who is ill. As highlighted by Corlett (2000) it was not the actual learning of the skills that was the problem for the students, it was the application of them. Making the same observation, Ousey and Gallagher (2007) noted the 'inability of the students themselves to transfer classroom learning to the clinical environment' (p. 201). In addition, Scully (2011) discussed the lack of sufficient time that the students had to practice their skills as well as the importance of learning both reflection and critical reasoning skills. We believe that simulation can help to address some of the challenges outlined above.

Scaffolding learning through simulation

Simulation provides a means of scaffolding student learning and has been used widely in nursing education, extending from human actors role playing through to artificial simulators, with the range and fidelity of the simulators varying (Gough, Hellaby, Jones & MacKinnon, 2012; Dearmon et al., 2013). Simulation learning evokes structured reflection on practice to bridge the gap between educational theory and clinical practice (Corlett, 2000; Rolfe, 2006), and promote the development of critical reasoning (Jeffries, 2005; Hatlevik, 2012; McCormick, Romero de Slavy & Fuller, 2013).

Simulation as a learning strategy

The use of simulation within nursing curricula provides a flexible learning and teaching model that can be developed to meet specific learning aims and objectives (Jeffries, 2005). Students can practice repeatedly in a controlled environment to gain confidence and develop skills. Simulation has the added benefits of being able to teach students those skills that they may come across infrequently, and be otherwise impractical to set up (Hope, Garside, & Prescott, 2010).

Students expressed a positive attitude to learning through simulation with improvements in confidence and competence (Hope et al., 2011; Gough et al., 2012; Dearmon, et al., 2013). Similarly the feedback from academics who utilised simulation as a teaching model have described it as useful in meeting the needs of students with variable learning requirements as well as building team work and improving communication (Jeffries, 2005; Dearmon et al., 2013).

The use of simulation as a learning strategy also provided opportunities for the student to learn and practice while developing deeper understanding. Sandelands (1990) noted the meaning of understanding as not just grasping the concept but being able to do things with that understanding. In particular, to be able to use understanding, apply reasoning and questioning to changing conditions and circumstances. In addition he also stated that "the growth and development of understanding is grasped most easily when it is manifested as an observable skill" (Sandelands, 1990, p. 240) and continued on to discuss how this 'understanding' developed with experience and practice.

Therefore, simulation provides ways and means of enhancing student learning by engaging students more fully in situations that mirror real life clinical circumstances. It facilitates the development of a richer understanding of clinical work in a safe and structured way (McCormick, Romero de Slavy & Fuller, 2013). The following sections describe an example of a low fidelity simulation task that was used to help students link theory to practice.

An example of simulation activity in teaching practice

The Bachelor of Nursing program is a three year undergraduate degree, completed over six semesters and compliant with the Australian Nursing and Midwifery Council competency standards (ANMC, 2009). Each semester students complete theoretical units at the university and then apply this learning during a three week clinical practice unit in a health care facility.

The students

A cohort of 88 second year students was engaged in a simulation task. These students had received theoretical teaching on respiratory, cardiothoracic, endocrinal, vascular, renal and shock management, and were preparing for their medical/surgical clinical placement. The objective of the simulation task was to reinforce this learning, teach the application of clinical skills and enhance clinical thinking, in preparation for clinical practicum.

The Learning Environment
A simulated hospital setting at the university provided the students with the environment to address the simulation challenges described in Table 1 and based on core learning content. The students were briefed for the simulation over the two weeks prior to the activity, by making them aware that the activity would involve the application of learning taught throughout the semester. This cohort of students had no prior exposure to this level of simulation. There was an air of excitement in the student group and they appeared engaged and motivated to learn.

The simulation task in the classroom
The simulations were conducted during tutorial time, across the last two weeks of the semester prior to clinical placements. The normal tutorial composition of 20 students was deemed to be too many for a single simulation so the tutorial group was divided in half; with two simulations conducted concurrently in separate clinical classrooms. Each tutor had 5 students taking part in the simulation, while 5 students observed. In the following week these observers and participants swapped places to complete the second simulation. Therefore every student in the class actively participated in a simulation.

Both of the simulation tasks were low fidelity and used a non-programmable manikin (Laerdal®, MegaCode Kelly™) where the tutor directed the group of 5 students in a simulation that involved monitoring and providing care for a 'patient' whose condition gradually deteriorated requiring intervention. The level of deterioration eventually led to an emergency situation requiring firstly a Medical Emergency Team (MET) response and then a cardiac arrest requiring Basic Life Support (BLS).

The students engaged with the simulation
At the commencement of the simulation the student group was asked to nominate a team leader. This student was responsible for allocating tasks and coordinating the team throughout the activity. One of the strategies built into the simulation included the removal of the team leader if he/she became too dominant. In three separate instances this was required. The dominant student was requested to attend to a phone call in a separate area, which allowed the rest of the team to make their own decisions and manage this new circumstance.

The simulation scenario mirrored clinical reality and commenced with the team leader collecting the patient from the post anaesthetic care unit (under the supervision of the tutor role playing a Registered Nurse), and returning to the surgical ward. The team leader provided a handover to the team who commenced with the routine postoperative management including patient assessment and vital signs. Over the next 30 minutes the patient condition deteriorated requiring more complex assessment and interventions (see table 1).

Table 1. The first simulation: The patient: 55 year old male, no relevant past history. Post-operative laparoscopic cholecystectomy

Psychomotor skill challenge	Critical reasoning skill challenge
Assess vital signs: TPR, BP, SpO_2, level of consciousness	Demonstrate intra-team communication
Patient assessment: including recognition of hypovolemic shock	Develop ability to delegate (both as a team leader and team member)
Oxygen therapy: assess and manage airway (including identify and apply the correct oxygen delivery mask, insertion of an airway and bag valve ventilation)	Extend skills in the prioritisation of care
IV therapy: assess and manage (including IV pump programming/priming/ equipment trouble-shooting)	Extend skills in time management
Pain: assess and manage (including PCA management/equipment trouble-shooting)	Demonstrate ability to engage as a team member
Nausea: assess and manage (including medication calculation and administration of medication)	Manage increasing stress levels (as the patient's condition deteriorates)
Wound: assess and manage (including post-operative wound care, observing wound ooze and reinforcing dressing).	Develop patient- nurse communication skills
Medical Emergency Team (MET): Identification of a patient meeting the criteria for a MET call, initiating call.	Practice interdisciplinary communication between medical staff and nursing staff
Basic life support (BLS): following BLS algorithm	Develop aptitude for self-reflection

The tutor coordinated the simulation and provided the patient's observations (consistent with hypovolemic shock). They role played the patient's verbal responses to the student's questions. The tutor also made minor interventions to change the clinical circumstances which the team was presented with. On occasion the tutor also halted the activity in order to conduct further learning. For example when the patient's SpO_2 deteriorated one group of students only considered increasing the oxygen flow which required the tutor to halt the activity and facilitate a discussion on alternative oxygen delivery systems, and the benefits of re-positioning the patient.

The simulations gave the students the opportunities to not only communicate with the patient, the patient's family, and the doctor but also to communicate

within the group. This was an essential requirement in the simulation task – they had to work as a team. Often the students would problem solve themselves verbalising their uncertainties and seeking assurances that they were making the correct decisions. Some students would offer prompts and advice to each other, allowing discussion about alternative options.

Group communication helped the students to work together as a team. The simulation task created a different mode of group work to what might normally occur in a classroom tutorial. It was more student-centred and each participant had to engage with the activity. It was more demanding of the student. For example, students could delegate tasks to individuals or alternatively work together to achieve time critical events. Owing to the deteriorating condition of the patient, students needed to carry out simultaneous care with one student taking observations while another had to reinforce the patient's dressing.

The structure of the simulation meant that learning opportunities were in some part dependent upon the students' contributions and interactions. In contrast to solely teacher-led lectures and tutorials, the simulations provided an opportunity for learning to be student focused (Jeffries, 2005), drawing on their shared knowledge and understanding in an applied manner.

As the simulation unfolded and the patient deteriorated the students worked as a team to prioritise care, think critically and apply their previous knowledge and skills. They engaged with the simulation and with each other as team members. The clinical classroom was full of energy and students appeared to learn in a dynamic environment, alert, ready and engaged. The tutors were able to manage the progression of the simulation to allow all students an opportunity to be responsible for different elements of care.

At the conclusion of the simulation an informal debrief was undertaken which included contributions from the team and observing students. Tutors were careful to ensure that all feedback was given in a positive and constructive manner. Each simulation group spent a few minutes after the simulation discussing different issues, before re-joining as a full tutorial class where they took the opportunity to release their stress as well as acknowledge that it had been a very positive learning experience.

What emerged from the simulation task activity?

The original intention was to use simulation to help students build stronger links between theoretical and clinical practice. A vital aspect of the simulation activity was the emphasis on changing information into understanding (Hope et al., 2011). By developing this understanding, the student would then able to apply this information when confronted by new situations.

Table 2. Synopsis of the reactions of students and tutors to simulation based activities in class

Student themes	Tutor themes
Confidence increased through applying skills in a realistic situation	Generated positive emotions observing the students growing in confidence
Ability to link medical/surgical concepts to clinical skill practice	Activity challenging for the students
Generated a range of positive emotions – 'awesome', 'fun', 'stimulating', 'interesting'.	Activity required a lot of effort and time to plan/organise/deliver
Felt stressful but able to recognise the benefits of being challenged	Students appeared to be engaged throughout activity
Helped to prepare for practicum	Required an extra tutor, therefore extra cost incurred
	Learning objectives needed to be clearer
	Identified the need for a formal de-brief tool.

Feedback was generally very favourable (see Table 2). Students stated that they loved the simulations, describing them as instructive, developmental and fun. Some students indicated that they felt quite a high degree of pressure and stress, but understood the need for this as they prepared for their medical/surgical placement. Feedback collected from the tutors led to a couple of changes for the simulation the following week; these included more focused objectives, a decrease in the critical care component and an increase in medical/surgical component. Unlike the first simulation the second one did not result in a cardiac arrest but required the students to prepare the patient urgently for operating theatre due to a deteriorating condition.

Our reflections

An extra tutor was needed which created new challenges in coordinating double the usual number of staff (we ran two simulations concurrently); as well as the extra costs associated in financing the extra tutor. Planning meetings held before the simulations were vital for communication and that the exercise was a successful one which challenged and supported the students at the same time. Our review also highlighted the unrealistic situation of having 4 or 5 nursing students caring for a single patient. Proposals for future simulations now include greater levels of realism as well as containing costs.

Another area of improvement noted was the initial lack of very clear objectives. The plan is for the unit coordinator to refine these and have them ready for discussion with the tutors and the students before the start of the next semester. Careful planning and preparation includes: clear objectives, pre simulation brief for staff and students, realistic time allocation and the provision of essential information to the students prior to the exercise (Jeffries, 2005).

The final area of improvement required was the need for a formal debrief at the end of each simulation. Formal debriefs were recognised by Jeffries (2005) as significant for learning. During debrief there was also the opportunity to encourage the students to reflect on the simulation, noting areas of perceived weaknesses and strengths allowing the opportunity for their own future practice and development. As stated by Scully (2011) "ultimately the conscientious student must identify and accept their own weaknesses before utilising resources to rectify them and improve their practice to an optimal level" (p. 95).

Conclusion

This article described a simulation activity that utilised low fidelity mannequins to help undergraduate nursing students link theory and practice in preparation for a clinical placement. The students had the opportunity to practice psychomotor skills and develop critical reasoning in a controlled environment. Communications from students undertaking clinical practicum after the simulation activities, led us to believe that the simulation was especially useful in preparing them for clinical work. This is an area we plan to explore further within the curriculum.

References

Australian Nursing & Midwifery Council (ANMC). 2009. *Standards and Criteria for the Accreditation of Nursing and Midwifery Courses leading to Registration, Enrolment, Endorsement, and Authorisation in Australia- with Evidence Guide.* Retrieved from http://www.anmac.org.au/userfiles/file/ANMC_Registered_Nurse.pdf

Bradley, D., Noonan, P., Nugent, H., & Scales, B. (2008). *Review of Australian Higher Education, Final Report, Australian Government, Canberra.* Retrieved from http://www.innovation.gov.au/HigherEducation/ResourcesAndPublications/ReviewOfAustralianHigherEducation/Pages/ReviewOfAustralianHigherEducationReport.aspx

Corlett, J. (2000). The perceptions of nurse teachers, student nurses and preceptors of the theory-practice gap in nurse education. *Nurse Education Today*, 20(6), 499-505. doi:10.1054/nedt.1999.0414

Dearmon, V., Graves, R.J., Hayden, S., Mulekar, M.S., Lawrence, S.M., Jones, L., Smith, K.K., & Farmer, J.E. (2013). Effectiveness of simulation-based orientation of baccalaureate nursing students preparing for their first clinical experience. *Journal of Nursing Education*, 52(1), 29-38. doi:10.3928/01484834-20121212-02

Gough, S., Hellaby, M., Jones, N., & MacKinnon, R. (2012). A review of undergraduate interprofessional simulation-based education. *Collegian*, 19(3), 153-170. doi.org/10.1016/j.colegn.2012.04.004

Hatlevik, I. K. R., (2012). The theory-practice relationship: reflective skills and theoretical knowledge as key factors in bridging the gap between theory and practice in initial nursing education. *Journal of Advanced Nursing,* 68(4), 868-877. doi:10.1111/j.1365-2648.2011.05789.x. Epub 2011 Jul 27

Hope, A., Garside, J., & Prescott, S. (2010). Rethinking theory and practice: Pre-registration student nurses experiences of simulation teaching and learning in the acquisition of clinical skills in preparation for practice. *Nurse Education Today*, 31(7), 711-715. doi: 10.1016/j.nedt.2010.12.011. Epub 2011 Jan 14

Jeffries, P.R. (2005). A framework for designing, implementing, and evaluating simulations used as teaching strategies in nursing. *Nursing Education Perspectives*, 26(2), 96-03. Retrieved from http://0-

search.proquest.com.prospero.murdoch.edu.au/docview/236632858?accountid=12629

McCormick, M.J., Romero de Slavy, R., Fuller, B. (2013). Embracing technology: Using an unfolding case simulation to enhance nursing students' learning about Parkinson disease. *Journal of Neuroscience Nursing*, 45(1), 14-20. doi:10.1097/JNN.0b013e318275b220

Ousey, K., & Gallagher, P. (2007). The theory-practice relationship in nursing: A debate. *Nurse Education in Practice*, 7(4), 199-205. doi:10.1016/j.nepr.2007.02.001

Rolfe, S. (2006). Nursing Praxis and the science of the unique. *Nursing Science Quarterly*, 19(1), 39-43. doi:10.1177/0894318405284128

Sandelands, L. E. (1990). What is so practical about theory? Lewin revisited. *Journal for the Theory of Social Behaviour*, 20(3), 235-262. doi: 10.1111/j.1468-5914.1990.tb00185.x

Scully, N. J. (2011). The theory-practice gap and skill acquisition: An issue for nursing education. *Collegian*, 18(2), 93-98. doi:10.1016/j.colegn.2010.04.002

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Harnessing Assessment's Power to Improve Students' Learning and Raise Achievements: What and how should teachers do?

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Abstract. Assessment's power in bettering learning and rising achievement is widely recognized in recent years. However, recent studies on assessment practices in sub-Saharan African countries clearly indicate that in reality the assessment's actual power in improving learning remain unharnessed! As current assessment practice is limited to the use of snapshots written tests and examinations which mainly measure memorized facts and provide very little information (in form of grades/scores) on how to improve instructions and learning in schools. This article proposes ways through which assessment can used by teachers to improve teaching and learning in secondary school classrooms. Proposed ways are embedding assessment with teaching and learning process, sharing learning intentions with students, sharing success criteria with students, informing instructions using assessment data, promoting students' self-assessment and peer-assessment, giving opportunities for students to express their understanding, providing effective feedback and building confidence for success in teachers and students. The article concludes by highlighting the implications of the proposed ways for policy practices.

Key words: Formative assessment; Peer-assessment; Assessment for learning; Assessment as learning; Feedback.

Introduction

In recent years assessment has been acclaimed to contribute to student's learning and raise their achievement. For example, assessment data provide students with feedback on their progress towards achieving curriculum objectives thereby directing students to focus on the areas which needs more learning efforts. It also provides feedback to teachers on how their students are learning so that they can devise subsequent lessons in response to students' needs (Nilson, 2010; Webb &

Jones, 2009). Generally, assessment helps to figure and focus subsequent teaching and learning.

Despite wider recognition of the value of assessment in improving students' learning and achievement, studies by World Bank (2008) and Ottevanger, Van den Akker & de Feiter (2006) in sub-Saharan African countries clearly indicates that the powerful engine of assessment for improving learning remain unharnessed. Current assessment practices are confined to the use of written tests which mainly measures memorized knowledge for the purpose of promoting students to the next education level, contrary to curriculum intentions which requires the integration of assessment in day-to-day classroom instructions (World Bank, 2008). Moreover, high-stake national examinations and continuous testing by classroom teachers (falsely named continuous assessment) provide very limited information useful to teachers and students for modifying instructions and learning in ways likely to improve students' achievements (National Research Council, 1996). This is because feedback from paper-pencil assessment usually comes in the form of scores or grades which has very little guidance for improvement. Consequently, students, parents, and schools behold the purpose of learning as meeting test requirements and attaining good grades. Black & William (1998) remind us that wherever rewarding higher learning achievers through grades or positions in class ranking is a habit then students find means of scoring high marks instead of striving for more learning. This situation calls for radical reforms in assessment practices by classroom teachers, so that learners can benefit from the assessment practices that can significantly contribute to their learning achievement.

Changing the focus of classroom assessments

For many decades classroom assessments has been used for measuring the amount of knowledge accrued by students as a result of instructions. Assessment results collected through standardized testing was a testimony for the knowledge acquired by student. These results were used to make decisions about the destiny of student e.g. access to higher education and providing information to parents and public in general. The use of assessment intentionally for determining what student know and can do to demonstrate achievement of curriculum outcomes is referred as assessment *of* learning (MECY, 2006).

In recent years, however this approach to assessment has been questioned due to the evidence from studies linking assessment and learning. Evidence shows that assessment can be intentionally used in classrooms for the purpose of promoting learning and improving achievement (Black & William, 1998; Black, Harrison, Lee, Marshall & Wiliam, 2005; Stiggins, 2005; Webb & Jones, 2009). This requires changing the purpose of assessment by focusing more on assessment *for* learning and assessment *as* learning (ARG, 2002; MECY, 2006). To enhance learning and improve achievement, assessment *for* learning and assessment *as* learning should feature classroom instructions than assessment *of* learning (Stiggins, 2005; Webb & Jones, 2009).

Assessment *for* learning is a process of seeking and interpreting evidence for use by learners and their teachers to decide where the learners are in their learning, where they want to go and how best they can get there (ARG, 2002). It is any assessment for which the first priority in its design and practice is to serve the purpose of promoting pupils' learning (Black, Harrison, Lee, Marshall & Wiliam, 2002). Assessment *as* learning is the one that utilizes learner's self monitoring and critique of thoughts that are implanted in learning process (MECY, 2006). It is an assessment that drives student's learning and academic self worth (Stiggins, 1999).

Classroom realities in most Sub-Saharan Africa as expressed in the studies by World Bank (2008), Kitta & Tillya (2010), Hamilton, Mahera, Mateng'e, & Machumu (2010) and Ottevanger, et al. (2006) shows that the traditional assessment *of* learning has dominated classroom assessment practice though curriculum demand otherwise. For example, assessment practices by majority of secondary school teachers in Tanzania has generally remained traditional involving the use of recall-based paper and pencil assessment methods such as tests, quizzes, examination and oral questions contrary to demands of the reformed curriculum (Shemwelekwa, 2008; Kahwa, 2009; Timothy, 2011; Banda, 2011). Thus, reconfiguration in assessment approaches is imperative so that assessment *for* learning and assessment *as* learning receive substantial emphasis.

Purpose of the review

This work focuses on how teachers can reconfigure their assessment practices so as to harness assessment's power in improving teaching and learning thereby raising achievement among secondary school students. The key question addressed is *'in what ways can teachers use assessment to improve learning and raise achievement?'*

Methodology of the review

This review involved systematic literature search on different educational databases using relevant keywords, free text and author searching. Only materials published between 1998 and 2013 were considered. The year 1998 was when a review article which provided evidence on the link between assessment and learning titled "inside black box" by Black and William was published. Educational databases consulted include: Educational Resources Information Center, Google scholar search, Australian Education Index, British Education Index.

Ways through which teachers can use assessment to improve learning and raise achievements

Generally, teachers should reconfigure their assessment practices by stressing substantially on assessment *for* learning and assessment *as* learning. In this part I have identified ways which teachers can use assessment to improve learning and raise achievements basing on the recent research and literature linking assessment and learning (Black & Atkin, 1996; Black & Wiliam, 1998; Atkin & Coffey, 2003; Black, et al., 2005; Mansell, James & Assessment Reform Group, 2009; Witt-Smith & Cumming, 2009). These are presented below.

Embedding assessment in instructional process

This involves careful and purposeful use of questioning at different stages of teaching and learning process to elicit information from students about their prior knowledge, learning styles, interests, needs, differences and ability to analyze their own learning. The information is then used to modify subsequent teaching and learning (Mansell, James & ARG, 2009). This can be approached in two ways:

First, teachers may collect information about learners' background, abilities, learning styles, learning needs and interests.

For example, *at the beginning of the term, form five students were asked to write a memo to biology teacher describing:*

- *How they experienced biology in the previous classes.*
- *What they expect from their teacher,*
- *Their best approach to learning biology,*
- *What they need from the teacher as a support* (MECY, 2006).

*As a teacher read and reflect on students' memos, he got insights into students' learning needs, goals and styles, previous experiences, prior knowledge of biology, and their ability to analyze their own learning. Teacher then uses this information to plan instructions and learning activities. He further asked students to write similar memos every month as the instructions progress throughout the term. The details of the successive memos includes self-assessment of progress towards goals identified, comments on support they are receiving, learning challenges they encounter and plans for unmeet or future goals. All the letters with details were organized into a portfolio which was submitted to the teacher on monthly basis for review. Through the memos, teacher was able to monitor learning progress, identify learning difficulties on individual basis and improve his instructional practices (*Adopted from MECY, 2006).

Second, questioning can be used to elicit classroom interactions, provoke thoughts and dialogue among students, motivate the class and remind students about the previous lessons (Black & Wiliam, 2012). Although most teachers in Tanzania ask questions during teaching and learning process, research shows that when teachers ask questions they allow very short wait time and when they realize that no student volunteers to answer, teachers either seek answers from bright students only (often by naming the student), answer the questions themselves or switch to closed-ended simple questions where recall of memorized information rather than critical thinking provides answers (Paulo, 2014; Timothy, 2011). An effort to improve learning through assessment should not be *void* of asking open-ended questions with sufficient wait time for students to provide more thoughtful responses. For instance, questions such as "*most men believe that the sex of a child is determined by woman but not man, do you agree or disagree?"* Should be changed to "*most men believe that the sex of a child is determined by woman but not man" what do you think? And why do you think so?"* When teachers allow more wait time as they ask questions, students become more confident in responding, give thoughtful and elaborated responses and failure to respond decrease (Rowe, 1974).

Sharing learning intentions with students

This strategy requires teacher to tell learners about the learning intentions they are expected to achieve. This provides them with framework for guiding their learning activities. Stiggins (2005) argued that teachers have to clarify learning objectives to students at the start of instructional process and provide models of examplary and weak work for students to self evaluate their progress to the intended learning objectives. Assessment that encourages learning affirms to the premise that students can succeed if they are conscious of learning objectives, how far they have moved and how they can achieve the objectives. Setting and discussing learning objectives with students raise their awareness of what they should to learn, where they are in relation to where they should be and possible pathways to next learning (Davies, 2003).

Setting and sharing success criteria with students

In this strategy teachers set and clarify before students the benchmarks to be used for judging their learning achievements. Sharing assessment benchmarks entails engaging students in dialogue to enable them understand how the benchmarks can be met in practice. Setting and sharing learning criteria with students is important as it helps them discover what they are already capable of and what they should learn to achieve the set criteria. Davies (2003) emphasized that when teachers set learning criteria with students they can monitor their thinking, performance, and develop deep insights.

Moreover, sharing success criteria with students provide them with information they need for self and peer monitoring of learning. It gives them standards against which they can judge the quality of their work far before they submit it to teacher, thus on submission every work will be at the minimum criteria set and success by everyone is ensured. Success criteria can be in form of rubrics and samples or models of good work.

> For example: *a teacher may assign students to visit different waste management sites in the city to learn various ways of managing wastes, identifying the strength/ weakness of each method of managing wastes and finally write a comprehensive report on this outdoor activity. In order to assist students to accomplish this activity and learn beneficially a teacher should share with students the criteria upon which their report will be judged. Teacher can provide rubrics that contain criteria that can guide students in self-assessing the standard of their work.*

Informing instructions using assessment data

Teachers need to be conscious of their pupils' progress and difficulties they encounter when learning in order to adapt instructions to meet students' needs which are often unpredictable and variable (Black & Wiliam, 1998). Teachers can learn valuable information about student's progress and use it in bettering their instructional effectiveness in various ways.

Teachers may diagnose students' background experiences, skills, attitudes and misconceptions before teaching and use this information to assess students' learning needs. Further, teachers can examine students' work or product to get insight into

their thinking and understanding. The information that teachers collects through these methods can be used to make informed decisions about their teaching such as adjusting rate of instructions, assigning remedial activities and planning alternative experiences.

Teachers' use of assessment information to improve instruction may also involve individual and collaborative analysis of assessment data in the form of student's responses to assessment task and linking them to their own teaching. The analysis may be extended to cover teaching strategies and resource allocation that resulted to the assessment data in hand. It is also important that teachers propose innovative teaching techniques and resource use and have their colleagues appraise these strategies critically. The use of assessment data in this way raises teachers' consciousness of their own practices and its relation to students' achievement (Griffin, 2009). For example:

> *Biology teacher was preparing to teach about human genetic disorders (albinism, sickle cell, color blindness etc). During the preceding lesson the teacher asked the class to tell all they know about human genetic disorders. Student's responses showed that genetic disorders were perceived to be caused by witchcraft and curse and that people with genetic disorders were perceive as badluck to their families and that they were useless because they can't do anything significant. These perceptions were contrary to the principles of genetics which emphasizes that genetic disorders are inherited from one generation to another as parental genes are passed onto the offspring. Due to this situation the teacher had to go back and redesign her next lesson to include some activities on principles of genetics so that student's misconceptions can be rectified. This is a typical case that has used student's misconceptions to adjust instructions.*

Promote students' self-assessment and peer-assessment

Teachers can raise achievement by engaging students in peer and self-assessment. They should allow students to self-assess their learning by encouraging them to review their work critically and constructively. Students are more likely to make efforts to raise the standards of their work if they are involved in making decisions about their work rather than being passive recipient of teachers' judgment of their work (ARG, 2002). For example the current practices in schools which involve marking students' work and giving feedback in form of grades can be reversed if teachers understand the value of involving students in assessing their work. Moreover, peer-assessment is valuable because students may accept easily peer comments on their work than comments made by teacher (Black, et al., 2002). Peer work is also valuable because the interchange will be in language that students themselves would naturally use and because students learn by taking the roles of teachers and examiners (Sadler, 1998 as cited in Black, et al., 2002).

> For example *a teacher can ask students to prepare a portfolio during a particular piece of instruction and provide students with rubrics indicating what is required in the portfolio that they will prepare. To encourage self and peer-assessment a teacher*

may ask students to exchange their portfolios for peer review. Each one will then review the work of his/her colleague and provide comments for improvement. The reviewed work is then returned to the owner who will make corrections taking into considerations comments given by peer. This can be done several times before the work is finally submitted to teacher.

In this way students mutually benefit from learning and every one will believe in success than failure. Assessment task may be attached with the rubric like the one provided below to guide self and peer-assessment.

Portfolio assessment rubric

Components of a portfolio:

- Task performed by student as part of self practice
- Daily reflections on the classroom discussion and activities
- Personal notes on the topic

Table 1: Sample of rubric for peer assessment

Criteria	Good	Better	Best
Relevance of self practice tasks	Did Self practice tasks but is not directly related to the topic discussed	Did Self practice tasks but very few tasks are directly relevant to the topic discussed	Self practice tasks that are directly relevant to the topic discussed.
Number of issues addressed in the reflection	Only one page daily reflection touching few aspects on the topic discussed.	Few pages reflection touching many aspects of the topic discussed.	Several pages reflection touching all important aspects discussed.
Number of objectives addressed in personal notes.	Personal notes addressing few objectives of the topic discussed but not systematically organized	Personal notes addressing most objectives of the topic and systematically organized.	Personal notes addressing all objectives of the topic and systematically organized.

Providing constructive feedback

Teachers can raise pupils' achievement by providing feedback which enlightens students to identify their subsequent learning steps and how to take them, build on success and strengths as well as correct weakness. Stiggins (2005) emphasized that teacher should channel students to continually access constructive as opposed to judgmental feedback that enlightens students realize strategies for improving the quality of their work. Teachers in science for instance provide various laboratory work e.g. *dissecting small animals to display various body systems such as digestive system, excretory system or reproductive system*. After doing lab work students may be required to write a lab reports to be submitted to the teacher. In order to help

students learn and benefit from such assessment task, teachers should give descriptive feedback which may point out students' weakness and strengths on experimental procedures, use of appropriate tools and report writing skills as illustrated in the example of teachers' comments for students' lab report on dissection of a small animal (Table 2).

Table 2: Teacher's comments for student's lab report on dissection

Assessment criteria	Level of performance	Example of teachers' comments
Accuracy of experimental procedures	Student followed most experimental procedures accurately but damaged several major blood vessels due to improper positioning of the cutting scissors	*The experimental procedures you followed are ok. But you need to revisit your dissection manual to learn proper positioning of a cutting Scissor. Please give yourself more practice on proper positioning of a cutting scissors to avoid damaging major blood vessels while dissecting.*
Appropriate use of dissecting tools e.g using scissors for cutting skin	Student demonstrated mastery in selecting appropriate dissecting tools	*Your selection and use of dissecting tools is good but you may learn on how to use more dissecting tools other than those discussed in class.*
Organization of report	Student organized the report such that beginning, middle and end of the report are obvious but student fail to position some information accurately. For example misplaces some sub-stapes and does not give appropriate examples.	*You showed mastery in organizing your report by clearly showing beginning, middle and end. But please re-examine your decision to place sub-step **X** and **Y** under step **Z**. You should read samples of lab reports from books/internet to learn how to organize reports and give appropriate examples where needed. See me if you fail to access relevant websites/books with samples of lab reports.*

Building confidence for success in teachers and students

Teachers should build confidence among themselves and students that everyone can improve. Conventionally, teachers have used assessment techniques such as open date quiz and exams as well as threats to poor reports to parents for motivating students to expend their efforts to learning. This is rooted in teacher's axiomatic stance that maximizing anxiety equals optimizing learning. This total to sorting students on pass/fail groups (Stiggins, 2005). This practices has emotional effects since those who passed exams build confidence as they believe that success is within their reach, they dare to take risks of striving for success, as they try hard efforts continue to result into success and finally they become academic and emotional winners. On the other side those who fail begin to re-assess their capacity

to triumph in learning. They start to give up which, in turn deprives them of the emotional drivers needed to exert more efforts in learning (Stiggins, 2005).

Stiggins (2005) observed that assessment for learning motivates students as it helps them believe that success is within their reach. He further stressed that schools are no longer places that merely arrange and order students as per their scores; they should places where all students become successful in realizing pre-determined learning benchmarks. Teachers can build confidence for success among students by first identifying and recognizing differences in learning abilities among students and designing and giving tasks for students with different learning abilities. Each task can then be followed by series of other learning tasks each with increasing complexity until every learner attain specified minimum standards of performance. Generally, there are different ways that teacher can use so that learners benefit from assessment information. Since the ultimate beneficiary of any learning process is the learner, then teachers should think of different ways through which they can tape the power of assessment in shaping students learning than limiting the use of assessment information to accountability purposes.

Barriers impeding teacher's use of assessment for improving learning

Although assessment *for* learning and assessment *as* learning has been touted as promising ways for improving student's self awareness of leaning process, supporting motivated learning and rising achievements, there are noteworthy barriers to teacher's use of assessment for improving learning.

In the current context where assessment is used for accountability purposes, summative forms of assessments and large scale testing are still the main drivers of classroom instructions. For example, in US, teachers abandoned assessment *for* learning practices in their classrooms because they felt constrained by state assessments under No Child Left Behind legislation (Popham, 2008). Similarly, Ottevanger, et al. (2006) reported 'a lot of teaching to the test' with teachers focusing on topics and skills that appear frequently in the national examinations and devoting a lot of time acclimatizing students to examination-type questions. Researchers observed that 'in Botswana teachers invariably copy questions from national examination papers and sometimes mimic their questioning style as the papers are seen by many as defining the standards to be attained and maintained in assessment' (p. 19). These classroom cultures which focus on summative forms of assessments impede assessment for learning and suggest misalignment between systemic assessment priorities and assessment *for* learning reforms.

Another main barrier to the adoption of assessment *for* learning is the misconception that assessment *for* learning and summative assessments are detached processes (Bennett, 2011; Gardner, 2012). Teachers view assessment *for* learning practices as different from summative forms of assessments. This perception results into low adoption of assessment *for* learning because summative assessment is prioritized in the national assessment systems. Teachers are inclined

to focus on summative assessments because its results are used to communicate student's achievement, form part of the students' academic record and criteria of school progress and teacher effectiveness within the accountability context (DeLuca , Luu, Sun & Klinger, 2012).

Lack of positive personal experiences of assessment for learning among teachers is also a barrier. Evidence shows that innovative assessment approaches such as assessment *for* learning are yet to be integrated in teaching and learning process in many schools in SSA countries (Ottevanger, et al., 2006; World Bank, 2008). Thus teachers have not had positive personal experiences with new assessment practices as students. Assessment practices by these teachers may be shaped by their own experiences of assessment as students and they may continue to assess learning in a conventional ways they experienced as students in a learning environment that centers on assessment for accountability (Harrison, 2005).

Lastly the use of assessment for improving learning may be practically constrained by shortage of time and large class sizes. Literature reiterates teachers' beliefs that traditional forms of assessment are more time efficient and valuable because they serve summative requirements and accountability demands (Hargreaves, Earl & Schmidt, 2002; Mabry et al., 2003). Even in countries where substantial numbers of teachers appreciate the potential of assessment f*or* learning in improving student's achievement, teachers are concerned with the too much class time required to integrate assessment *for* learning. This limits the amount of curriculum teachers can cover (Morgan & Watson, 2002). The concerns for time become even more intense when the class size is large because the interaction and exchange between teacher and student on individual basis is compromised.

Implication for policy and practices

Reconfiguration of teachers' assessment practices is influenced by policy and practical contexts in which the reforms occur, thus supportive policy is crucial for successful reforms. In this part policy and practical implications of the proposed ways of harnessing assessment's power are highlighted.

Enthusiasm to engage in change

Since we are human beings, we are vulnerable to the tendency of preserving the existing beliefs and habits. We tend to be reluctant to transform established beliefs or construct to new ones. Changing classroom assessment practice is both emotionally and intellectually demanding to teachers because teachers will need to think about and find new ways of facilitating students' learning through assessment so that every learner attains the intended curriculum (MECY, 2006). Emotionally, teachers will have to abandon traditional views of transmitting knowledge and maintaining classroom control at the expense of redistributing learning responsibility to students including assessment responsibility.

Capacity building for teachers

As shown by evidence from recent research on assessment practices in many Sub-Saharan African countries, assessment practices by many school teachers are deeply rooted on the traditional approaches which entail the use of one size fits all paper and pencil tests for ascertaining how much the intended curriculum student has accrued.

Changing these practices to reform oriented assessment *for* learning and assessment *as* learning that require teachers to use assessment to enhance students' learning necessitates capacity building. To secure new attitudes and higher expectations which are critical to improvement, teachers need new experiences that may result into different beliefs (Fullan, 2007). Capacity building therefore should involve changing the mind sets of teachers so that they view assessment as a tool for learning than tool for accountability. Moreover, it should involve building their pedagogical capacity to create, administer and analyze new form of assessment tasks focused at enhancing learning. This can be achieved by providing teachers with variety of working models of implementation by teachers from whom others can learn and derive convictions and confidence that better assessment is feasible. The first step therefore should entail setting small number of schools, providing school based professional development and supporting execution of innovative assessment practices (Black & William, 1998). These few will then represent concrete examples of how better assessment appears in reality (Black & William, 1998). Capacity building gives teachers concrete examples that improvement is doable in practice (Fullan, 2007).

Genuine leadership support

Unless school managers are strongly committed to nature and support growth and transformation in teacher's professional knowledge and practice, changes in assessment practice will not be achievable (MECY, 2006). Educational managers need to appreciate the raison d'être for reforming assessment practices so that they can reconsider and adapt school policies and support teachers in terms of funding, time and conducive environment for them to try effective assessment practices. School leaders who are regarded as critical resource in the professional guidance and instructional directions in schools should be called up on to spend more time with teachers in conversations about innovative assessment practices (Fullan, 2007).

Conclusion

It should be understood that there is no single approach to successful adoption of innovative assessment practices which can enhance students' learning and rise standards. However, emphasis should be on the provision of concrete examples of what and how should teachers do. Concrete examples if accompanied with context based professional support will increase teachers' confidence to try out and consequently adopt assessment practices that exploit assessment's power in enhancing students learning.

References

Assessment Reform Group(ARG). (2002). *Assessment for Learning: 10 Principles – Research-based principles to guide Classroom practice*. United Kingdom: Assessment Reform Group.

Atkin, M., & Coffey, J. E. (2003). *Everyday assessment in science classroom.* Virginia: National Science Teachers Association.

Banda, S. (2011). Application of constructivist approach in competence-based curriculum in secondary schools in Tanzania. The case of chemistry subject in Songea municipality. Unpublished Masters Dissertation. University of Dar es Salaam.

Bennett, R. E. (2011). Formative assessment: A critical review. *Assessment in Education: Principles, Policy and Practice, 18*(1), 5-25.

Black, P. J., & Wiliam, D. (2012). Developing a theory of formative assessment. In J. Gardner (ed.), *Assessment and Learning,* (pp. 206-229). London: Sage.

Black, P., Harrison, C., Lee, C., Marshall, B., & William, D. (2005). *Assessment for learning: Putting it into practice*. Berkshire: McGraw Hill.

Black, P. J., Harrison, C., Lee, C., Marshall, B., & Wiliam, D. (2002). *Working inside the black box: Assessment for learning in the classroom*. London: King's College London School of Education.

Black, P. & Wiliam, D., (1998). *Inside the Black Box: Raising standards through classroom assessment*. London: School of Education, King's College.

Black, P., & Atkin, J. M. (1996). *Changing the subject: Innovations in science, mathematics and technology education.* London: Routledge.

Clarke, S. (2001). *Unlocking formative assessment: Practical strategies for enhancing pupils' learning in the primary classroom.* London: Hodder & Stoughton Educational.

Davies, A. (2003). Learning through assessment: Assessment for learning in science classroom. In J. M. Atkin & J. E. Coffey (Eds.), *Science educators essay collection: Everyday assessment in science classroom* (pp. 13-26). Virginia: NSTA Press.

DeLuca, C., Luu, K., Sun, Y., & Klinger, D. A. (2012). Assessment for learning in the classroom: Barriers to implementation and possibilities for teacher professional learning. *Assessment Matters,* 4, 5-29.

Fullan, M. (2007). *The new meaning of educational change.* New York: Teachers College Press.

Gardner, J. (2012). Assessment for learning: A compelling conceptualization. In J. Gardner (Ed.), *Assessment and learning* (pp. 279-286). London: Sage.

Griffin, P. (2009). Teachers' use of assessment data. In C. Wyatt-Smith & J. Cumming (Eds.), *Educational assessment in the 21st century: Connecting theory and practice* (pp. 183-208). Dordrecht: Springer.

Hamilton, M., Mahera, W. C., Mateng'e, F. J., & Machumu, M. M. (2010). *A need assessment study of Tanzania's science education.* Retrieved on 7th March, 2012 from: http://www.unesco.org.

Hargreaves, A., Earl, L., & Schmidt, M. (2002). Perspectives on alternative assessment reform. *American Educational Research Journal, 39*(1), 69-95.

Harrison, C. (2005). Teachers developing assessment for learning: Mapping teacher change. *Teacher Development, 9*, 255-263.

Kahwa, J. (2009). Identification of the gaps between intentions and practices in the implementation of the 2005 revised biology curriculum. Unpublished Masters Dissertation. University of Dar es Salaam.

Kitta, S., & Tilya, F. (2010). The status of learner-centred learning and assessment in Tanzania in the context of the competence-based curriculum. *Papers in Education and Development, 29,* 77-91.

Mansell, W., James, M., & Assessment Reform Group. (2009). *Assessment in schools: Fit for purpose? A Commentary by the Teaching and Learning Research Programme.* London: Economic and Social Research Council.

National Research Council. (1996). *National science education standards.* Washington: National Academy Press.

Nilson, L. B. (2010). *Teaching at its best: A research-based resource for college instructors.* San Fransisco: John Wiley & Sons.

Ottevanger, W., Van den Akker, J., & de Feiter, L. (2006). *Developing science, mathematics and ICT in secondary education: Patterns and promising practices* (SEIA Thematic Study Report no.7). Retrieved on 23rd June, 2013 from: http://siteresources.worldbank.org/INTAFRREGTOPSEIA/Resources/No.7SMICT.pdf

Mabry, L., Poole, J., Redmond, L., & Schultz, A. (2003). Local impact of state testing in southwest Washington. *Education Policy Analysis Archives, 11*(22). Retrieved on 10th April, 2013, from http://epaa.asu.edu/epaa/v11n22

Manitoba Education, Citizenship and Youth (MECY). (2006*). Rethinking classroom assessment with purpose in mind: Assessment for learning, assessment as learning and assessment of learning.* Manitoba: MECY.

Morgan, C., & Watson, A. (2002). The interpretive nature of teachers' assessment of students' mathematics: Issues for equity. *Journal for Research in Mathematics Education, 33*(2), 78-90.

Paulo, A. (2014). Pre-service teacher's preparedness to implement competence-based curriculum in secondary schools in Tanzania. *International Journal of Education and Research, 2*(7), 219-230.

Popham, W. J. (2008). Classroom assessment: Staying instructionally afloat in an ocean of accountability. In C. A. Dwyer (Ed.), *The future of assessment: Shaping teaching and learning* (pp. 263-278). New York: Lawrence Erlbaum.

Rowe, M. B. (1974). Wait time and rewards as instructional variables, their influence on language, logic and fate control. *Journal of Research in Science Teaching*, *11,* 81–94.

Shemwelekwa, R. (2008). The effectiveness of adoption of competence-based education for teaching and learning mathematics in secondary schools in Tanzania.Unpublished Masters Dissertation. University of Dar es Salaam.

Stiggins, R. J. (1999). Evaluating classroom assessment training in teacher education. *Educational Measurement: Issues and Practice, 18* (1), 23-27.

Stiggins, R. (2005). From formative assessment to assessment for learning: A path to success in standards-based schools. *Phi Delta Kappan*, *87*(4), 324-328.

Timothy, V. A. (2011). An assessment of competence-based curriculum implementation in teaching and learning ordinary level physics. The case of Singida municipality, Tanzania. Unpublished Masters Dissertation. University of Dar es Salaam.

World Bank. (2008). *Curricula, examinations and assessment in secondary education in Sub-Saharan Africa* (World Bank Paper no. 128). Washington, D. C: World Bank.

Wyatt-Smith, C., & Cumming, J. (2009). *Educational assessment in the 21st century: Connecting theory and practice.* Dordrecht: Springer.

Webb, M., & Jones, J. (2009). Exploring tensions in developing assessment for learning. *Assessment in Education: Principles, Policy and Practice, 16*(2), 165-184.

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The Relationship between Teachers' Knowledge, Attitude and Belief with the Implementation of Inquiry-Based Learning in Zhengzhou, China

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Abstract. This study investigates the level of teachers' knowledge towards the nature of science (NOS), attitude and belief towards inquiry teaching, and the implementation of inquiry-based learning (IBL); the difference of the implementation of IBL based on teachers' years of experience; and the relationship between teachers' knowledge on NOS, attitude and belief towards inquiry teaching with the implementation of IBL. The quantitative research methodology has been used to complete this study. The sample involved is 728 in-service primary science teachers in China. They are asked to answer a questionnaire which consists of four sections. The items measuring teachers' knowledge on NOS, teachers' attitude towards inquiry teaching and the implementation of IBL are adopted from previous studies with the permission of the respective author; whereas, the items measuring teachers' belief towards inquiry teaching has been adapted from another study to meet with the research objectives. The descriptive and inferential statistics have been used to analyses the data. The findings show that the level of teachers' knowledge on NOS, teachers´ attitude and belief towards inquiry teaching, and the implementation of IBL are at the medium level; there is no significant difference in the implementation of IBL according to the teachers' years of experience; and, there are significant relationship between teachers' knowledge on NOS, attitude and belief towards inquiry teaching with the implementation of IBL. These findings implicate that teachers' knowledge, attitude and belief are the three main predictors for the implementation of IBL in the teaching of science in primary schools in China.

Keywords: Teachers Knowledge; Teachers Attitude; Teachers Belief; Inquiry-Based Learning

Introduction

Since 1978, China has emphasized on quality-oriented education (Shi & Zhang, 2008). However, only in 2001, the Chinese government has initiated an education reform. This reform has brought to the change of the Nature subject which is taught in primary school to a new subject calls Science. This new Science subject is an integrated course which combined the knowledge from chemistry, physics, geography and biology. It is taught to students in grade 3 up to grade 6. The change is due to the development of science and technology which has influenced the Chinese education authorities to realize the importance of science education (Hu, 2010, Jiao, 2012).

In the same year, the Ministry of Education of the People´s Republic of China (MEPRC) (2001) releases a document called 义务教育课程设置实验方案 (A Compulsory Education Curriculum Experimental Scheme). The document has specified six objectives for the Chinese education reforms. One of the objectives is the implementation of inquiry and problem-based learning in science teaching. Such implementation is required to develop students' information searching and processing skills, communication and cooperation skills, as well as critical thinking and creative problem solving skills.

The main problem occurs as a result of the introduction of the new Science subject is the human resource. To solve the problem any teachers can teach the subject. Therefore, according to Li and Li (2011) there are teachers who are teaching science but their training background is not in teaching science. These teachers do not have the professional knowledge about science and the teaching of science, thus, they could not comprehend the content of science in the textbook, have lacked of imagination on how to organize students to collaborate in group learning, and unable to use proper science investigation as required in the inquiry teaching(Liu, 2007). With this problem, the activities for the content delivery, therefore, are dry.

Since the introduction of the new Science, most teachers are haunted to teach science because it is difficult to teach the subject without proper training in science content and pedagogy (Wang, 2011). The teachers have no choice but to teach because the subject is already in the education system. Based on this situation, many teachers refuse to do inquiry teaching. They prefer the traditional way of teaching to achieve 'the maximal efficiency of teaching' (Hu, 2013). But then it is against the requirement stated in the document mentioned earlier. So this study is carried out to identify the predictors that might have related to the implementation of IBL in the teaching of science in primary schools.

There are three main questions to be addressed in this study (a) what is the level of teachers´ knowledge on nature of science (NOS), attitude and belief towards inquiry teaching, and the implementation of inquiry-based learning (IBL) in teaching primary science. (b) Is there a significant difference in the implementation of IBL according to teachers' years of experience in teaching primary science? (c) Is there a significant relationship between teachers´

knowledge on NOS, attitude and belief towards inquiry science with the implementation of IBL in teaching primary science?. The last question is divided to three small questions to manage the data later on (i) Is there a significant relationship between teachers´ knowledge on NOS and the implementation of IBL in teaching primary science? (ii) Is there a significant relationship between teachers´ attitude towards inquiry teaching and the implementation of IBL in teaching primary science? (iii) Is there a significant relationship between teachers´ belief towards inquiry teaching and the implementation of IBL in teaching primary science?

Literature Review

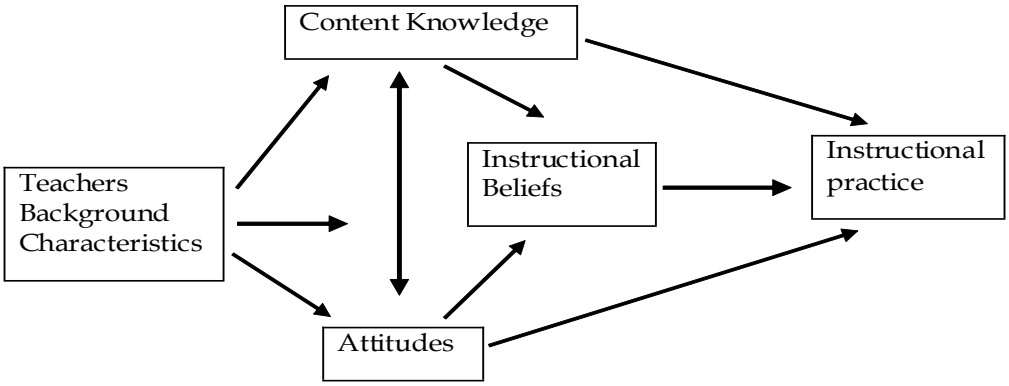
IBL is a project-oriented pedagogic strategy derives from constructivist theory of learning. Dewey (1938) defines it as "…the controlled or directed transformation of an indeterminate situation into one that so determinate in its constituents distinctions and relations as to convert the elements of the original situation into a unified whole". IBL approach can help students improve their achievement and attitude towards the subject, and improve students' interest towards learning (Kim, 2006; Dimichino, 2007). IBL can also help students to master inquiry skills (Apedoe *et al*., 2006). Students can keep more active attention on learning and get more excellent achievement in the process of inquiry approach (Jin &Bierma, 2011). Based on this statement, for teaching to be effective inquiry method should be acquired and adopted by teachers.

According to Meijer *et al,* (1999), it is a necessary prerequisite for every teacher to have rich content knowledge of the subject they are teaching. In the teaching of science, the study of NOS has become as one of the keys in science education research since 1970s (Abd-El-Khalick & Lederman, 2000). Studies have shown that every science teacher needs to acquire the NOS concept. McComas *et al*., (2000) defined NOS as a fertile hybrid arena, blending various studies of science including its history, sociology, philosophy, and combined with cognitive sciences and even ethics into a rich description of what science is, how it works, how scientists operate as a social group, and how society both directs and influences scientific endeavors.

Besides knowledge, teachers follow their thoughts and act as providers of information and directness to the students, accommodating the changes and modifications in the curriculum with their own personal implicit theories derive from their belief. Bandura (1986) believes behavior can be more effectively predicted by belief regarding capabilities than what they are actually able to accomplish. Nespor (1987) thinks belief is an independent aspect of the cognition associate with knowledge and has stronger affective and evaluative components.

Ajzen and Fishbein (1969) add individuals' attitude as another major determinant of one's behavior. Wilkins (2008) put forward a theoretical model (see Figure 1) relating teacher knowledge, attitude, and belief to instructional practices. This theoretical model is based on Ernest' (1989) model regarding the knowledge, belief and attitudes of the mathematics teachers. It shows that teachers' knowledge, attitude and belief are influenced by their background

characteristics. Background characteristics involve teachers' experience, education, training and environment (Wilkins, 2008). Teachers' knowledge is representing the cognitive component and teachers´ attitude and belief are representing the affective components (Ernest, 1989). As suggested by the model, teachers´ knowledge, attitude and belief have a direct relationship with the teachers' behavior in the instructional practices. In this study, teachers´ knowledge on NOS, teachers´ attitude and belief towards inquiry teaching are hypothesized as having no relationship with the implementation of IBL in the teaching of primary science, and teachers' experience brings no difference in the implementation of IBL.



Source: Wilkins (2008)

Figure 1: Theoretical model relating teachers´ knowledge, attitudes, beliefs, and instructional practice

Several studies have supported the model drawn by Earnest. These studies show there are connections between teachers' knowledge, attitude and beliefs towards their behavior, which is portrayed in their instructional practice. Abd-El-Khalick (2012) argues that the understanding of NOS can help science teachers to structure good inquiry learning environments. Rivas' research (2003) involving pre-service teachers find that there is a direct connection between pre-service teachers´ understandings of the NOS and their classroom practice. Several studies done in Hong kong, and Norway on teachers' belief reveal teachers´ belief and their practice knowledge have significant impact on the implementation of IBL (Choi, 2007; Chan, 2010; Sikko *et al.,* 2012). Hutchins (2009) finds out that teachers´ attitude has also some significant influence on students´ attitude towards inquiry learning. Another study from Hutchins & Friedrichsen (2012) find out teachers with positive attitude towards inquiry instruction can use inquiry practice better. Sumrall's (2008) study in Mississippi which involves 814 K-5 elementary teachers show teachers' attitude towards inquiry science is found to be related to the use of IBL. Thomas (2008) also finds that teachers´ attitude towards reform has a significant influence on inquiry instructional practice through surveying 6 ninth-grade science teachers. Based on these previous studies, teachers' knowledge, attitude and belief do have some significant relationship with the teachers' behavior. This has encouraged the researcher to look whether these variables can be the predictors of the implementation of IBL in the teaching of primary science in China.

Research design

The main objectives of this study is to answer the "what" questions regarding the level of teachers´ knowledge about NOS, attitude and belief towards inquiry science, and the implementation of IBL; the difference in the implementation of IBL based on the teachers' years of teaching experience; and the relationship between teachers´ knowledge about NOS, attitude and belief towards inquiry science with the implementation of IBL. This study does not try to answer questions about "why" and "how". As mentioned by Shields and Rangarajan (2013) that quantitative research is used to address the "what" questions rather than the "how/when/why" questions, therefore, this study adopts the quantitative research methodology.

Sampling and Data Collection

This study is carried out in Zhengzhou city in China and its population is the science teachers teaching in primary schools. The sample of this study is selected using the two-stage cluster sampling. This sampling method starts by listing all the clusters in the location. In the first stage the researcher select the clusters using simple random sampling technique. The selected clusters are then sampled in the second-stage using the same technique (Ahmed, 2009). In this study, two districts have been selected from five similar education districts in Zhengzhou City. For each district, 143 primary schools have been chosen, therefore, a total of 286 schools have been selected as the location for the study to take place. In these schools a total of 732 science teachers have been identified and they have been invited to fill in the questionnaire.

For ensuring high response rate, the questionnaires have been filled and collected in front of the researcher. So the response rate is 100%. All questionnaires have been examined. It has been found that 4 questionnaires (0.55%) are incomplete. To ensure the validity of the survey, these 4 questionnaires have been removed, resulting in only 728 (99.5%) valid completed questionnaires to be analyzed.

Instrument

The researchers have adopted three questionnaires to measure teachers' knowledge on NOS, attitude towards inquiry teaching, and to measure the implementation of IBL. Those questionnaires are The Nature of Science Profile Questionnaire (Fazio, 2005), The Revised Science Attitude Scale Questionnaire (Sumrall, 2008) and The Practicing Inquiry Pedagogy Questionnaire (Dai *et al*., 2011). The questionnaire to measure teachers' belief, The Inquiry Belief and Practice Questionnaires, is adapted from Sumrall (2008).

A rating scale is the most useful way when an attitude, behavior, or interest needs to be evaluated on a continuum (Leedy & Ormrod, 2010). The first part of the questionnaire includes the question containing the teachers' years of experience in teaching science in primary school. The second part includes a grading scale, consisting of Likert-type questions, where the teachers state their views on their knowledge on NOS, attitude and belief towards inquiry teaching and the implementation of IBL.

Data Analysis

The data of this study has been analyzed using the Statistical Package for Social Science (SPSS) version 21. The descriptive analysis is used to test the level of teachers' knowledge on NOS, attitude and belief towards inquiry teaching and the implementation of IBL. The one-way ANOVA has been used to test the difference in the implementation of IBL according to the teachers´ years of experience. Meanwhile, the Pearson correlation has been used to test the relationship between teachers´ knowledge on NOS, teachers' attitude and belief towards inquiry teaching with the implementation of IBL.

The Results

The first objective of this study is to identify the level of teachers´ knowledge on NOS, attitude and belief towards inquiry teaching, and the implementation of IBL. Bluman (1998: 31) gives the solution about the procedure for constructing a grouped frequency distribution for numerical data. He states the class width by dividing the range by the number of classes. Width= R/number of classes (R=highest value- lowest value).

Likert scale has 5 points for teachers' knowledge, attitude and belief, width=5-1/3=1.33 means that the level is divided into three classes: [1-2.33) (low); [2.33-3.66] (medium); (3.66-5] (high). Likert scale has 4 points for the implementation of inquiry-based learning, width=4-1/3=1 means that the level is divided into three classes: [1-2) (low); [2-3] (medium);(3-4] (high).

Table 1: the level of variables

Variables	N	Mean	SD	Level
teachers´ knowledge about NOS	728	2.95	.37	Medium
teachers´ attitude towards inquiry teaching	728	2.96	.38	Medium
teachers´ belief towards inquiry teaching	728	3.00	.38	Medium
the implementation of IBL	728	2.50	.54	Medium

Based on Table 1, the range of mean from teachers´ knowledge on NOS, teachers' attitude and belief towards inquiry teaching is within 2.33-3.66, which is at the medium level. For the implementation of IBL the range of mean is within 2-3, which is also at the medium level. This analysis shows the level of teachers' knowledge on NOS, attitude and belief towards inquiry teaching and the implementation of IBL is at the medium level. The second objective of this study is to identify whether there is a difference in the implementation of IBL based on the teachers' years of experience in teaching science.

Table 2: The implementation of IBL based on the years of teaching science

Years of teaching science	The implementation of IBL		
	N	Mean	Standard Deviation
1-3 years	380	2.47	.53
4-6 years	300	2.51	.55
7-9 years	49	2.56	.51
Total	728	2.50	.54

The implementation of IBL	Sum of Square	df	Mean Square	F	Sig.
Between Groups	.526	2	.263	.911	.403
With Groups	209.445	725	.289		
Total	209.971	727			

Table 2 shows that the result of the one-way ANOVA indicates there is no difference [F (2, 725)=.911; p>.05] in the implementation of IBL based on the teachers' years of experience in teaching science. This finding shows that the implementation of IBL by all science teachers in this study is equal regardless of their experience. The third objective of this study is to identify whether there are significant relationships between teachers' knowledge on NOS, attitude and belief towards inquiry teaching with the implementation of IBL.

Table 3: Relationship between teachers´ knowledge, attitude, belief and the implementation of IBL

Dimension	1	2	3	4
Teachers´ knowledge about NOS	-			
Teachers´ attitude towards inquiry teaching		-		
Teachers´ belief towards inquiry teaching			-	
The implementation of IBL	.721**	.811**	.786**	-
**. Correlation is significant at the 0.01 level (2-tailed).				

Table 3 shows that the result of Pearson correlation indicates the relationship between teachers' knowledge on NOS and the implementation of IBL is beyond .05 and the Pearson 'r' correlation is .721. For the relationship between teachers' attitude towards inquiry teaching and the implementation of IBL is also beyond .05 and the Pearson 'r' correlation is .811. Meanwhile the relationship between teachers' belief towards inquiry science and the implementation of IBL state beyond .05 and the Pearson 'r' correlation is .786. The findings show that the relationship of these three variables is positive and large (Cohen, 1988), which mean there are significant relationships between teachers' knowledge about NOS, attitude and belief towards inquiry teaching with the implementation of IBL.

Discussion and Recommendation

The finding of this study shows the respondents have moderate knowledge on NOS, thus, their attitude and belief towards inquiry teaching are also moderate. It is portrayed in their instructional practice, the implementation of IBL, which is also found to be at the moderate level. The results are consistent with some of the previous related studies. Sangsa-ard & Thathong (2014) find more than half of the teachers in their study have medial level of understanding of NOS. Meanwhile, Sikko*et al.*, (2012) study find more than half of their teachers are disagree or strongly disagree to implement inquiry approach in classroom practice. Other studies show that the IBL approach is not popularly implemented in the classroom teaching (Kraus, 2008; Reaume, 2011). In term of the level connection between the variables, there are also studies to confirm the finding of this study. Samuel *et al.*, (2013) find teachers´ beliefs is barely moderately favorable to their practice of IBL, therefore, the level of the implementation of IBL is at the unsatisfactory developing level. Bishaw (2010) also show that the level of teachers' beliefs is related to the implementation of the problem-solving teaching approach.

This study also shows although there is no significant difference in the implementation of IBL according to teachers' years of experience in teaching science, but the descriptive analysis shows that the scores of the implementation of IBL is higher when teachers´ years of experience in teaching is longer. This finding is concurrence with Ladd's (2008) finding which shows teachers with longer years of experience in teaching are more effective compare to teachers with less experience. Another researcher, Wilkin (2008), finds that years of experience in teaching has significant relationship with teachers' instructional practice. Though these studies show that experience does have relationship with the instructional practice, but, its effect on classroom practice as a whole is still seen as a controversial issue. More studies should be done to address this issue.

Another finding of this study show the result of teachers´ knowledge about NOS has significant and positive relationship with inquiry teaching. According to Shim *et al.* (2010), there is a relationship between teachers´ views about NOS and the use of inquiry approach. Abd-El-Khalick (2005, 2012) also argues through the understanding of NOS, teachers could not only convey to students' imagination of science, but also structure a good environment of inquiry learning. Teachers' understanding of NOS has important relation with teachers' promotion of open-ended scientific inquiry and to improve their ability to implement inquiry teaching (Rutherford, 1964; Bencze & Bowen, 2006). However, there are few studies have the opposite findings. Atar (2007) shows that there is no relationship between teachers´ understanding of NOS and practices was far from being simple and linear. Andersen (2011) also states that knowledge cannot be used to predict the implementation of a student-centered approach. These opposite findings require further study in the future.

The result of the teachers´ attitude towards inquiry teaching also shows that it has a significant and positive relationship with inquiry teaching. Teachers´ positive attitudes towards inquiry teaching have important relationship with

inquiry practice (Sumrall, 2008; Thomas, 2008; Molen & Adlderen-Smeets, 2013; Tenaw, 2014). Haney *et al.* (1996) argues if teachers have positive attitudes towards inquiry teaching, then it might be possible that these positive attitude can be linked to teachers' behaviors in classroom practice. Teachers' attitude affects their degree of commitment to their duties, the way they taught and treated their students, and how they perceive their professional growth (Chen &Rovegno, 2000).

This study also shows teachers' belief towards inquiry science has significant relationship with inquiry teaching. It is important to consider that teachers´ belief can be used to predict the implementation of inquiry teaching in classrooms practice (Nespor, 1987; Trumbull & Slack, 1991; Chan, 2010). Pajares (1992: 307) summarizes findings from many researchers about the relationship between belief and classroom practice: "Few would argue that the belief teachers hold influence their perceptions and judgments, which, in turn, affect their behavior in the classroom, or that understanding the belief structures of teachers and teacher candidates is essential to improving their professional preparation and teaching practices". Munby (1982) explores educational belief literature and suggests when studies show there is no relationship between belief and teachers' behaviors; it may be due to the poor choice of the instrument or the model.

As a whole, the result of this study show consistency with Ernest´ model (1989). Teachers' knowledge, attitude and belief are all found to have significant relationship with these teachers' practice of teaching, in the case of this study is the IBL. The findings from this study suggest the relationship between teachers' knowledge about NOS, attitude and belief towards inquiry teaching with the implementation of IBL is positive and strong, therefore, the hypothesis of this study is failed to be accepted. Consequently, the three variables of this study can be used as the predictors of the implementation of IBL in the teaching of science in primary schools in Zhengzhou, China.

For future research there are few issues need to be tackled. Firstly, it is recommended that the research location should be widened. This study is done in Zhengzhou city only. Other cities or areas in China should be involved to understand the level of the implementation of IBL in primary schools in China. Secondly, a study should be carried out in other level of schools, such as the secondary school level. This study is only involved the science teachers in primary schools. It is ethically wrong to say the findings are also the same in secondary schools without a proper study. Thirdly, this study focuses on the relationship among teachers´ knowledge on NOS, teachers' attitude and belief towards inquiry teaching and the implementation of IBL. It is quite possible that there are other variables that are not included in this study. Further research could find other variables that may have relationship with the implementation of IBL such as teachers' content knowledge and teachers´ qualification. Finally, for further study the use of different tools to collect more accurate data, such as teachers' notes, and teachers' reflections on their teaching of science, are needed.

Conclusion

Overall, this study has involved 728 teachers from primary schools in Zhengzhou city, which have filled the questionnaire. The questionnaires have been analyzed using descriptive and inference statistics. The results show that the teachers' knowledge on NOS, teachers' attitude and belief towards inquiry teaching and the implementation of IBL is at the medium level. There is no significant difference in the implementation of IBL based on teachers' years of experience in teaching science. But, significant relationship has been found between teachers´ knowledge on NOS, attitude and belief towards inquiry teaching with the implementation of IBL. This finding conforms to Ernest's theory. Lastly, these findings show the three variables, the teachers' knowledge of NOS, attitude and belief, are the main predictors of the implementation of IBL in the teaching of science in primary schools in Zhengzhou, China.

References

Abd-El-Khalick, F. (2005).Developing deeper understandings of nature of science: The impactof a philosophyof science course on preservice science teachers' views and instructional planning.InternationalJournal of Science Education, 27(1): 15–42.

Abd-El-Khalick, F. (2012). Teaching with and about nature of science, and science teacher knowledge domains.Science & Education.Springer.

Abd-El-Khalick, F. & Lederman, N.G. (2000). Improving science teachers´ conceptionsofnature of science: a critical review of the literature.International Journal ofScienceEducation, 22, 665-701.

Ahmed, S. (2009). Methods in Sample Surveys.Johns Hopkins Bloomberg School of Public Health.

Ajzen, I. &Fishein, M. (1969).The Prediction of Behavioral Intentions in a Choice Situation.Journal of Experimental Social Psychology. 5: 400-416.

Apedoe, X. S., Walker, S. E. & Reeves, T. C. (2006).Integrating Inquiry-based Learning into Undergraduate Geology.*Journal of Geoscience Education*.**54**(3): 414-412.

Andersen, M.H. (2011). Knowledge, attitude, and instructional practices of michigan community college math instructors: the search for a kap gap collegiate math. Western Michigan University.

Atar, H.Y. (2007). Investigating inquiry belief and nature of science (NOS) conceptions of science teachers as revealed through online learning. UMI:3301523.

Bandura, A. (1986). Social foundations of thought and action: A social cognitive theory. Englewood Cliffs, New Jersey: Prentice Hall.

Bencze, J. L., & Bowen, G. M. (2006). Teachers' tendencies to promote student-ledscience projects:Associations with their views about science. ScienceEducation.,90 (3):400-419.

Bishaw, A. (2010). Teacher's beliefs and actual practice of problem solving approach in teaching mathematics.*Journal of Education and Science*.**6** (1): 73-87.

Bluman, A.G. (1998). Elementary Statistics: a step by step approach.McGraw-Hill.

CHAN, HOK,ON. (2010).How do teachers' beliefs affect the implementation of inquiry-based learning in thePGS Curriculum? A case study of two primary schools in Hong Kong., Durham theses, DurhamUniversity. Available at Durham E-Theses Online: http://etheses.dur.ac.uk/320/. Retrieved on 19 April 2014.

Chen, W. &Rovegno, I. (2000).Examination of expert and novice teachers' constructivist-oriented teaching practice using a movement approach to elementary physical education. Research Quarterly for Exercise and Sport, 71: 357-372.

Choi, S. (2007). Elementary teachers' beliefs and practical knowledge about teachingscience as inquiry: The effects of an inquiry-based elementary science course.Doctoral dissertation, University of Houston.

Cohen, J. (1988).Statistical power analysis for the behavioral sciences.Hillsdale, NJ:Erlbaum.

Dai, D. Y., Gerbino, K. A., & Daley, G. M. (2011). Inquiry-based learning in China: do teachers practice what they preach, and why? Front. Educ China,6 (1):139-157.

Dewey, J. (1938). Logic: The theory of inquiry. In: The later works (eds J. A. Boydston and J. Dewey) pp. 1925-1953. Carbondale, IL: Southern Illinois University Press.

Dimichino, D. C. (2007).Teacher enactment of an inquiry-based science curriculum and its relationship to student and achievement in science. UMI: 3269058.

Ernest, P. (1989). The knowledge, beliefs and attitudes of the mathematics teacher: A model.Journal of Education for Teaching, 15, 13-34.

Fazio, X. E. (2005). Exploring teachers´ beliefs and knowledge about scientific inquiry and the nature of science: A collaborative action research project. Canada.

Haney, J. J., Czerniak, C. M., &Lumpe, A. T. (1996). Teacher beliefs andintentions regarding the implementation of science education reformstrands. Journal of Research in Science Teaching,33(9):971-993.

Hu, X. G. (2013). 对两种高中物理实验教学的看法 [Perspectives for two kinds of experimental teaching in senior high school]. 教育界[Education Circle], 32. http://d.wanfangdata.com.cn/Periodical_jyj201332117.aspx. Retrieved on 14, August 2014.

Hu, Y. (2010). 从"自力更生"到"自主创新"--中国科技发展的战略思想与历史经验[From self-dependence to indigenous innovation: strategic thought and historic experience of the science and technology development in China]. *中国软科学 [China soft science],* 8 (2). http://d.wanfangdata.com.cn/Periodical_zgrkx201008002.aspx. Retrieved on 03 September 2014.

Hutchins, K. L. (2009). Examining college science teachers' belief system about inquiry-based teaching in the context of a professional development program.ProQuest LLC. UMI: 3458975.

Hutchins, K. L. &Friedrichse, P. J. (2012). Science Faxully Belief Systems in a Professional Development Program: Inquiry in College Laboratories. *Journal of Science and Teacher Education*.**23**: 869-887.

Jiao,X.F. (2012). 小学科学课步履维艰[Science course in Primary School carries out with difficulties]. http://news.timedg.com/2012-01/04/content_7966882.htm. Retrieved 16 January 2013.

Jin, G. &Bierma, T. J. (2011).Guided-Inquiry Learning in Environment Health.*National Environmental Health Association*.**73** (6): 80-85.

Kim, T. H. (2006). Impact of Inquiry- based Teaching on Student Mathematics Achievement and Attitude. UMI: 3218047. ProQuest Information and Learning Company.

Kraus, R. (2008). Overcoming the difficulties of Inquiry-based teaching through the use of coaching. UMI: 3338026.

Ladd, H. F. (2008). "Value-Added Modeling of Teacher Credentials: Policy Implications." Paper presented at the second annual CALDER research conference, "The Ins and Outs of Value-Added Measures in Education: What Research Says," Washington, D.C.http://www.caldercenter.org/upload/Sunny_Ladd_presentation.pdf.Retrieved on 17 August 2014.

Leedy,P.D., &Ormrod,J.E. (2010). Practical Research: planning and design(9nd edition).The united states of America: Pearson Education publication.

Li, W. J., & Li, Y. J. (2011).让"问题"引领校本教研[Let " questions" lead the school-based research]. 现代教育科学：小学教师[Modern Education Science: Primary School Headmaster], 5. http://d.wanfangdata.com.cn/Periodical_xdjykx-xxjs201105016.aspx.Retrieved 14 February 2014.

Liu, Y. J. (2007). 科学课堂离成熟还有一段艰难路[Science course from the "mature" still has a hard way. China education daily] (6nd edition), 中国教育报[Chinese Education news],16 November. http://www.jyb.cn/cm/jycm/beijing/zgjyb/6b/t20071116_125870.htm. Retrieved 15 July 2013.

McComas, W. F., Clough, M. P., &Almazroa, H.(2000). The role and character of thenature of science in science education. In W.F.McComas (Ed.), *The Nature ofScience in Science Education: Rationales & Strategies* (pp. 3-39). TheNetherlands: Kluwer Academic Publishers.

Meijer, P.C., Verloop, N. &Beijaard, D.(1999). Exploring language teachers´ practical knowledgeabout teaching reading comprehension.Teaching andTeacher Education. 15: 59-84.

MEPRC [中华人民共和国教育部]. (2001).义务教育课程设置实验方案[Compulsory educationcurriculum experiment scheme]. http://www.moe.gov.cn/publicfiles/business/htmlfiles/moe/s7054/201403/xxgk_166076.html. Retrieved 28 April 2014.

Molen, J.W, &Aalderen-Smeets, S. (2013). Investigating and stimulating primary teachers' attitudes towards science: Summary of a large-scale research project. Frontline Learning Research, 2: 1- 11.

Munby, H. (1982). The place of teachers' beliefs in research on teacher thinking and decision making, and an alternative methodology.Instructional Science, 11:201-225.

Nespor, J. (1987). The role of beliefs in the practice of teaching.Journal of Curriculum Studies, 19:317-328.

Pajares, M. F.(1992). Teachers" beliefs and educational research: Clearing up a messyconstruct. Review of Educational Research, 62(4): 307-331.

Kraus, R. 2008. Overcoming the difficulties of Inquiry-based teaching through the use of coaching. UMI: 3338026.

Reaume, R. (2011). Pre-service teacher perceptions of and experiences with the implementation of inquiry based science teaching.

Rivas. M.G. (2003). The nature of science and the preservice elementary teacher: changes in understanding and practice. Proquest Information and Learning Company. UMI: 3093316.

Rutherford, F. J. (1964). The role of inquiry in science teaching. Journal of Research in Science Teaching, 2: 80–84.

Samuel, D.F., &Ogunkola, B.J. (2013). St. Lucian elementary school teachers´ applicability beliefs and science teaching and learning: relevance to their level of inquiry-based instructional practices in science. International Education Studies, 6 (7):48-65.

Sangsa-ard, R., &Thathong, K. (2014). Examining Junior High School Science Teacher's Understanding of the Nature of Science in Chaiyaphum Province, Thailand. *Social and Behavioral Sciences*.4785-4797.

Shi, Z.Y., & Zhang, X.Q. (2008). 30年教育改革的中国经验 [Education Reform: Experience from China]. *北京师范大学学报 (社会科学版) [Journal of Beijing Normal University (Social Science)]*,**5** (2). http://d.wanfangdata.com.cn/Periodical_bjsfdxxb-shkx200805002.aspx. Retrieved on 03 September, 2014.

Shields, P.M.,&Rangarajan, N. 2013.*A Playbook for Research Methods: Integrating Conceptual Frameworks and Project Management*. Stillwater, OK: New Forums Press.*Electromic Journal of Science Education*.**14** (1):1-18.

Shim, M.K., Young, B.J., &Paolucci, J. (2010). Elementary teachers´ views on the nature of scientific knowledge: a comparison of inservice and preservice teachers approach.

Sikko, S. A., Lyngved, R., & Pepin, B. (2012). Working with Mathematics and Science teachers in inquiry-based learning (IBL) approaches: Teacher beliefs. *Visions Conference 2011: Teacher Education*. **6** (1) : 17.

Sumrall, T.F. (2008). South mississippi public elementary school teachers´ implementation of and attitudes toward inquiry-based science.UMI.

Tenaw, Y.A. (2014). Teacher attitude, experience and background knowledge effect on the use of inquiry method of Teaching.International Research Journal of Teacher Education, 1(1): 002-009.

Thomas, J.D. (2008). A response to reform: teachers´ attitudes and practical of inquiry-oriented instruction. UMI: 3327083.

Trumbull, D., & Slack, M. J.(1991). Learning to ask, listen, and analyze: using structured interviewingassignments to develop reflection in pre-service science teachers. International Journal ofScience Education,13(2): 129–142.

Wang, C. Y. (2011). 小学科学问题探究的策略[The strategy of elementary school science problems 小学科学：教师 [primary science: teacher],12.http://d.wanfangdata.com.cn/Periodical_xxkx-j201112148.aspx. Retrieved 14 February 2014.

Wilkins, J. M. (2008). The relationship among elementary teachers´ content knowledge, attitude, belief, and practices. Journal of Math Teacher Education, 11: 139-164.

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Psychometric Properties of the Processes of Change Scale for Smoking Cessation in Turkish Adolescents

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Abstract. The aim of the present study was to adapted a ten-factor the Processes of Change Scale for Smoking Cessation and to conduct validity and reliability analysis. Processes of change for smoking cessation scale were administrated to a sample of 276 adolescents. In scale adaptation studies, first-order and second-order confirmatory factor analysis were used for structure validity. To determine the reliability of the scale, Cronbach's Coefficient Alpha and test–retest were used. T-test and a corrected item-total correlation were used for item analisis. Corrected item-total correlations and T-test, which for comparison of lower 27% and upper 27% groups were formed according to total scores of the test, were used for item analisis. Confirmatory factor analysis provided a good fit. Coefficient Alpha was calculated for each of the two item scales. Values ranged from a low of 0.60 to a high of 0.85. Furthermore, Coefficient Alpha was calculated 0.84 for experiential processes and 0.78 for behavioral processes. Scale's test–retest reliability values ranged from a low of 0.62 to a high of 0.88. In the result of the item analysis, corrected item-total correlations were ranged from a low of 0.20 to a high of 0.55; and T –test values were ranged from a low of 5,73 (p<.001) to a high of 12.20 (p<.001). These findings show that the Turkish version of the Processes of Change Scale for Smoking Cessation is a valid and reliable instrument.

Keywords: smoking cessation, processes of change, adolescent, scale

Introduction

Smoking is a leading cause of preventable diseases all over the world, and disability in many developed (Reitzel Mazas, Cofta-Woerpel, Li, & Cao, 2010; Sanchez, Opaleye, Martins, Ahluwalia, & Noto, 2010; Sims, 2009). It is a habit that starts in adolescence (Sims, 2009) with an average age of onset ranked between 13-15. (Çelikel, Çelikel, & Erkorkma, 2009; Fawibe, Shittu, 2011) and an overt male preponderance (Akindele, Babalola, Adesola, & Eme,2010; Salawu, Danburam, Isa, & Agbo, 2010). According to the World health Organisation (WHO), nearly 6 million people kill due to tobacco use in a year of whom more

than 5 million are from direct tobacco use and more than 600 000 are nonsmokers exposed to second-hand smoke.

Most of the research about smoking focuse on emotional, social, psychological, and behavioral factors are considered affecting the smoking in adolescents (Kim, 2004). Some psychological problems, such as peerpressure, smoking parents or siblings, tobacco adverts, absence of restriction at home, stress and unemployment, may cause in the use of cigarette (El-Mhamdi,Wolfcarius-Khiari, Mhalla, Ben Salem, & Soltani, 2011; Osungbade & Oshiname, 2008; Sanchez et al., 2010). Adolescents are directly influenced by peers for decision to smoke (Ahmed, Rizwan-ur-Rashid, McDonald, & Ahmed, 2008; Babatunde et al., 2012; Odeyemi, Osibogun, Akinsete, & Sadiq, 2009; Yahya, Hammangabdo, & Omotara, 2010).

A great amount of studies examined associated with smoking factors in adolescence such as depression, suicidal ideation, parental smoking status and the abuse of other substances (e.g. Goodman & Capitman, 2000; Soteriades & DiFranza, 2003; Stanton, Oei, & Silva, 1994). Some of these studies (Goodman & Capitman, 2000; Hockenberry, Timmons, & Vander Weg, 2010) indicate that there is relationship between smoking and depression, other researchers (Afifi, Cox, & Katz,2007; Bronisch, Höfler, & Lieb, 2008; Riala,Viilo, Hakko, & Räsänen, 2007) state that there is correlation between smoking and increased likelihood of suicidal ideation and/or behaviors. However, some findings show that the relationship between smoking and suicidal ideation are mixed (Boden, Fergusson, & Horwood, 2007; McGee, Williams, & Nada-Raja, 2005). Iglesias, Cavada, Silva, & Caceres (2007) indicate that smoking associated with the factors about the abuse of other substances such as alchol and marihuana. Furthermore, parental socio-economic level and adolescent smoking were found to be negatively associated (Tyas & Pederson, 1998).

The possibility of quitting among adolescent depends the prevalence of smoking among their peers (Paavola, Vartiainen, & Puska, 2001). That is, influence of friends are the most important factors contributing to smoking cessation. However, health problems play a significant role in attempts to quit smoking. Moreover, education in schools about health problems related smoking may be encouraging smoking cessation (Babatunde et al., 2012).

Adolescent smoking cessation research is limited, so researchs must be made about smoking cessation in adolescent samples. In literature, there are few scale with regard to smoking cessation all over the world, but there isn't any instrument to measure this subject in Turkey. The aim of the present study was to adapted a scale to measure processes of change. It was previously developed for adult smokers by Prochaska Velicer, DiClemente, & Fava (1988), and adapted for adolescent by Hoeppner et al. (2006). The scale includes ten processes and have ten primary factors and two higher order factor that represent to experiential and behavioral dimensions (Hoeppner et al., 2006; Prochaska et al., 1988). *Behavioral processes include stimulus control, counter conditioning, reinforcement management, self liberation, and helping relationships. Experiential processes include consciousness raising, dramatic relief, environmental reevaluation, self-reevaluation, and social liberation* (Hoeppner et al., 2006, pp. 1364).

Method

Participants

Participants of the study consisted of 276 eight-grade students in Sultangazi, İstanbul. Participants include 122 males and 144 females. All the participants participated to the study voluntarily. The data collection and its analyses were done anonymously. Ages of individuals participating to the study ranked from 13 to 15. The perceived socio-economic status was 17% high-level income, 18% lower level income, and 25% mid-level income. 40% of Participants didn't answer about socio-economic status. The perceived academic achievement level was 36% high-level academic achievement, 8% lower level academic achievement, and 53% mid-level academic achievement. 3% of participants didn't answer about academic achievement. There was smoking individualy in family for majority of participants, 10 of them were siblings, 118 of them were fathers, 15 of them were mothers, 34 of them were fathers and mothers, 12 of them fathers and siblings. In addition, all individuals were smoking in the family of 6 participants.

Instrument

Processes of Change for Smoking Cessation Scale. The scale has been developed by Hoeppner et al. (2006) in order to measuring processes of change for smoking cessation. The measure consists of 20 items to assess the participants' use of the 10 processes of change for smoking cessation. Participant ratings are made on a 5-point Likert scale, ranging from "never" to "very often". The scale includes 10 primary factors representing the processes of change and two second order factors that grouped the processes into five behavioral (e.g., I stay away from places that remindme of smoking) and five experiential processes (e.g., I think about information I have read about how to stop smoking) of change. The experiential processes include; consciousness raising, dramatic relief, environmental reevaluation, social liberation, self reevaluation primary factors. The behavioral processes include; helping relationships, stimulus control, counter conditioning, reinforcement management, self liberation primary factors. Each primary factor of scale has two items.

In the analysis about original form of the scale, Coefficient Alpha was calculated for each of the two item scales. Values ranged from a low of 0.60 to a high of 0.84. The model fit was very good with $x^2(159)= 964,88$, x^2/df ratio=6.068, RMSEA= 0.08, and CFI (Bentler, 1990)= 0.92. All structural paths were statistically significant at the 0.05 level. The primary loadings were generally in the moderate (0.60 to 0.80) and high range (more than 0.80). The loadings for the secondary structure were all in the high range (Hoeppner et al. 2006).

Data Analysis

E-mail communication was established with the authors of the paper describing the psychometric aspects of the processes of change for smoking cessation scale, who granted the necessary permission. In the proces of translation of the

processes of change for smoking cessation scale into Turkish, 5 expert translators, translated scale items firstly into Turkish, and then back into English again to examine their consistence. Following this, the Turkish version was given to 43 adolescents who were asked to identify unclear items. After that, scale' Turkish form and English form were applied to adolescent in order to examined between two forms linguistic equivalence. In scale adaptation studies, confirmatory factor analysis were used for structure validity. To determine the reliability of the scale, Cronbach's (1951) Coefficient Alpha and test–retest reliability were used. T-test and a corrected item-total correlation were used for item analisis.

Findings

Linguistic Equivalence

In this study, firstly, the linguistic equivalence of the Processes of Change Scale was examined between Turkish form end English form. Results are illustrated in Table 1. According to the result of analysis, between Turkish form end English form correlation coefficients ranged from a low of 0.65 to a high of 0.90, and were statistically significant at the $p<0.001$ level.

Table 1: The linguistic equivalence of the Processes of Change Scale

Factors	Application	$\bar{x}$	*DF*	*r*
Experiential processes	English form	46,08	4,75	.75**
	Turkish form	46,20	4,08	
Consciousness raising	English form	9,29	1,23	.71**
	Turkish form	9,66	1,00	
Dramatic relief	English form	8,50	2,41	.77**
	Turkish form	8,37	2,53	
Environmental reevaluation	English form	9,83	0,38	.68**
	Turkish form	9,45	1,14	
Social liberation	English form	9,04	1,30	.70**
	Turkish form	8,91	1,10	
Self reevaluation	English form	9,41	1,71	.65**
	Turkish form	9,79	0,58	
Behavioral processes	English form	47,75	3,56	.90**
	Turkish form	47,70	3,99	
Helping relationships	English form	8,87	1,96	.77**
	Turkish form	9,04	1,92	
Stimulus control	English form	9.83	0,48	.84**
	Turkish form	9.70	0,62	
Counter conditioning	English form	9,54	0,93	.69**
	Turkish form	9,83	0,48	
Reinforcement management	English form	9,70	0,55	.66**
	Turkish form	9,45	1,21	
Self liberation	English form	9,79	0,65	.87**
	Turkish form	9,66	1,09	

**$p< 0.001$, *$p< 0.05$

Structure Validity

The structural equation modeling was used to fit the hypothesized confirmatory factor analysis model (Figure. 1 and Figure 2) to the sample of 276 adolescents. Ten primary factors of processes of change for smoking cessation scale were analyzed with first-order confirmatory factor analysis to investigate the factor structure having been found by Hoeppner in validity and reliability study of scales' original form.

First-order Confirmatory Factor Analize. CFA was applied to confirm the ten-factor structure found in original form of scale in CFA. According to the result of analysis, model's accordance indexes and chi-square value were acceptable (x^2=201,82 df=125, p=0.0000). Accordance index values were found as RMSEA=.047, GFI=93, CFI=.96, IFI=.96, NFI=.90, AGFI= .89 and SRMR= .04. All structural paths were statistically significant at the 0.05 level, and are represented in Figure 1.

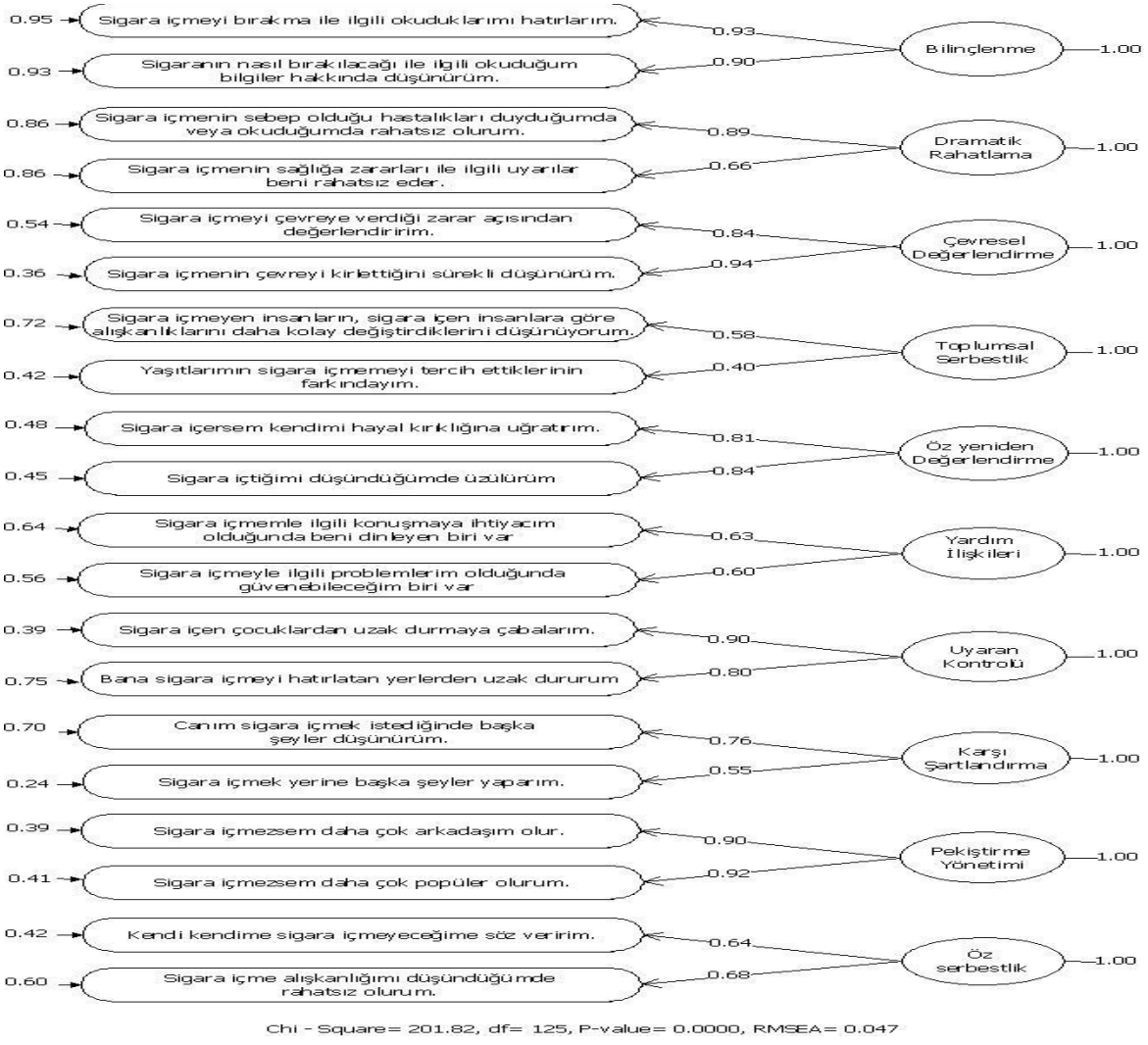

Figure 1: Factor loadings for the first-order factor structure

Second-order Confirmatory Factor Analysis. First-order confirmatory factor analysis revealed ten factors for smoking cessation processes of change scale. Second-order confirmatory factor analysis was conducted to test whether these ten primary factors were predicted by second-order factors, which are latent variables (experiential processes and behavioral processes). According to the result model provided a good fit to the data ($\chi 2$ /df = 2.42), RMSEA=.072, GFI=90, CFI=.90, IFI=.90, AGFI= .85 ve SRMR= .07). All structural paths were statistically significant at the 0.05 level, and were represented in Figure 2.

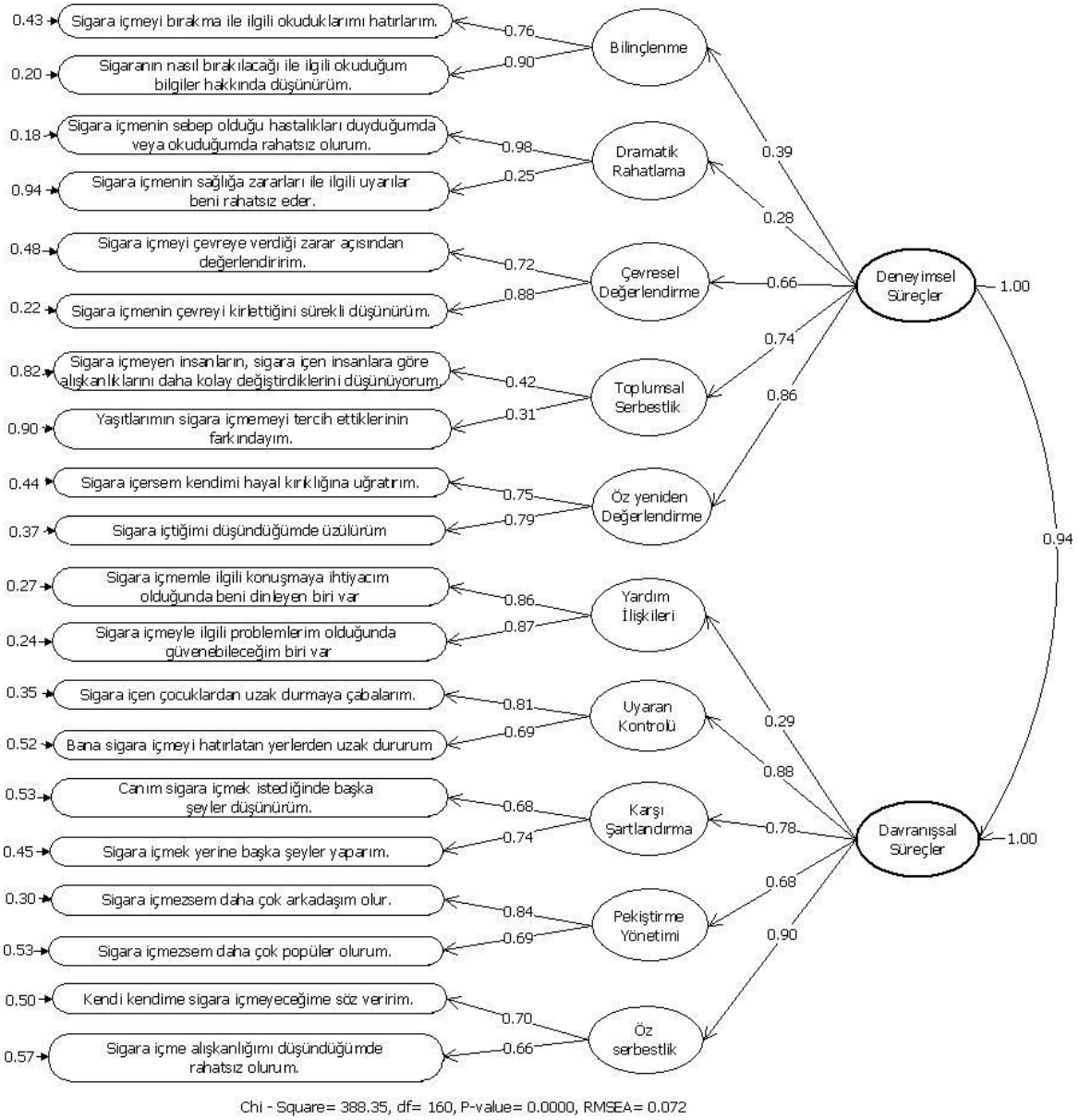

Figure 2: Factor loadings for the second-order factor structure

Reliability

Cronbach's (1951) Coefficient Alpha was calculated for each of the two item subscales. Their internal consistence coefficients were found to be 0.80 for consciousness raising; 0.60 for dramatic relief; 0.77 for environmental reevaluation; 0.61 for social liberation; 0.74 for self reevaluation; 0.85 for helping relationships; 0.71 for stimulus control; 0.63 for counter conditioning; 0.72 for reinforcement management; and 0.63 for self liberation. In summary, values ranged from a low of 0.60 to a high of 0.85 and were statistically significant at the $p<0.001$ level. Furthermore, Cronbach's Alpha internal consistence coefficient was used to examine the reliability of two second order factors. Their internal consistence reliability coefficients were found to be 0.84 for experiential processes; and 0.78 for behavioral processes. If we consider that preassumed and required reliability is 0.60 (Büyüköztürk, 2010), the scale's reliability level is adequate. Test-retest reliability was used to examine the reliability of the subscales. The findings concerning the test-retest reliability analysis are shown in Table 2.

Table 2: The test–retest reliability of the Processes of Change Scale

Factors	Application	$\bar{x}$	*DF*	*r*
Experiential processes	First application	43,72	4,88	.83**
	Second application	44,20	5,48	
Consciousness raising	First application	9,28	1,17	.82**
	Second application	9,52	0,96	
Dramatic relief	First application	7,48	2,08	.62**
	Second application	7,44	2,36	
Environmental reevaluation	First application	8,92	1,63	.73**
	Second application	8,88	1,73	
Social liberation	First application	8,48	1,61	.70**
	Second application	8,76	1,56	
Self reevaluation	First application	9,56	0,96	.79**
	Second application	9,60	0,95	
Behavioral processes	First application	46,20	4,94	.88**
	Second application	46,60	4,22	
Helping relationships	First application	8,20	2,84	.80**
	Second application	8,12	2,69	
Stimulus control	First application	9,40	1,04	.78**

	Second application	9,60	0,91	
Counter conditioning	First application	9,72	0,73	.70**
	Second application	9,84	0,47	
Reinforcement management	First application	9,40	0,86	.72**
	Second application	9,24	1,30	
Self liberation	First application	9,48	1,32	.87**
	Second application	9,32	1,80	

**p< 0.001, *p< 0.05

Scale's test-retest reliability coefficients were found to be 0.82 for consciousness raising; 0.62 for dramatic relief; 0.73 for environmental reevaluation; 0.70 for social liberation; 0.79 for self reevaluation; 0.80 for helping relationships; 0.78 for stimulus control; 0.70 for counter conditioning; 0.72 for reinforcement management; and 0.87 for self liberation. In summary, test-retest values ranged from a low of 0.62 to a high of 0.88 and were statistically significant at the p<0.001 level. Furthermore, test-retest reliability coefficients were found to be 0.83 for experiential processes; and 0.88 for behavioral processes. In summary, values ranged from a low of 0.62 to a high of 0.88 and were statistically significant at the p<0.001 level.

Item Analysis

Corrected item-total correlations and T-test, which for comparison of lower 27% and upper 27% groups were formed according to total scores of the test, were used for item analisis. The findings concerning the item analysis are shown in Table 3.

Table 3: The items of the processes of change scale, corrected item-total correlation, and t-test

Items	**r_{jx}**	**T-test**
1	.44	10,59***
2	.52	12,20***
3	.40	9,64***
4	.20	9,05***
5	.54	8,97***
6	.49	8,43***
7	.38	10,31***
8	.27	5,83***
9	.34	5,82***

10	.36	6,10***
11	.37	11,32***
12	.38	10.88***
13	.55	8,38***
14	.54	8,91***
15	.51	8,28***
16	.46	5,73***
17	.48	8,57***
18	.45	11,30***
19	.51	6,72***
20	.49	7,90***

**p< 0.001, *p< 0.05

In the result of the item analysis, it was found that corrected item-total correlations were ranged from a low of 0.20 to a high of 0.55; and T –test values were ranged from a low of 5,73 (p<.001) to a high of 12.20 (p<.001); and were statistically significant at the p<0.001 level.

Discussion

In the literature, it is seen that there is little research about this subject, so such scales must be developed in order to research, and must be adapted other cultures. In CFA, the hierarchical model from the original inventory produced a good fit to these data. Further, the underlying structure of the processes of change for adolescents is comparable to that observed for adults (Prochaska et al., 1988). The ten processes can be organized into five behavioral and five experiential processes of change as in the original form. The relationship between the ten first-order factors and the two second-order factors were generally higher in the adolescent sample. The correlation between the two second order factors (behavioral and experiential processes) was also higher in the adolescent sample (r =0.94). Alternatively, it may reflect less differentiation between experiential and behavioral processes among adolescent smokers. Future research can address this issue more clearly.

Analysis conducted to assess construct validity was first-order and second-order confirmatory factor analyses, which yielded significant chi-square value and adequate fit indices. According to the generally accepted criteria a good fit can be claimed whether GFI, AGFI, CFI, IFI, and NFI indices are above .90; RMSEA and SRMR are below .10 (Schermelleh-Engel, Moosbrugger, & Müller, 2003). A rule of thumb for this index is that .90 is indicative of good fit relative to the baseline model, while values greater than .85 may be considered as acceptable fit. Furthermore, Hu and Bentler (1999) gave evidence that .90 might not be a reasonable cutoff for all fit indices under all circumstances. They suggested to raise the rule of thumb minimum standard for the CFI and the NNFI from .90 to .95 to reduce the number of severely misspecified models that are considered acceptable based on the .90 criterion. In this regard, the results indicated that these model has acceptable fit indices. Regarding these criteria, model provided

a good fit to the data. Considering the recommendation that internal consistency coefficient (.86) can be considered as a construct validity indicator for the whole scale (Anastasi & Urbina, 1997; Büyüköztürk, 2010; Dağ, 2005) together with factor structure, reliability coefficients, good fit indices obtained by first-order and second-order confirmatory factor analysis, it can be concluded that the processes of change scale is a valid measurement tool for Turkish culture. High reliability estimates indicate that the scale is reliable. The scale adapted in this current study which has simple factors and which is easy to answer makes a major contribution to the research area. It can be concluded that the research accomplished its aim.

Internal consistence, item total correlation and t-test results are high and meaningful makes scale reliable. If we consider that preassumed and required reliability is .60 (Büyüköztürk, 2010), the scale's reliability level is adequate. In this context, satisfactory to good internal consistency reliability level of the scale was found for the total score and subscale scores ($p < .001$). In interpretation of item total correlation .30 and higher items, it is differentiate with its items, we see that item total correlation is adequate (Büyüköztürk, 2010). In low-high 27% groups t-test results have meaningful differences. Item total correlation and 27% low-high group comporison result show that results are distinguishing as original form. We can say that Turkish form of the processes of change scale can be used as valid and reliable as a result of studies.

Based on these results, this adolescent version of the processes of change scale for smoking cessation is recommended for use as a brief, validated, and appropriately adapted measure for assessments and interventions for smoking cessation with adolescents. Beyond serving as an assessment tool, the processes of change scale can also be used for intervention purposes (Hoeppner et al. 2006; Velicer et al., 1993). The efficacy of such interventions in targeting smoking cessation for adults has been supported by previous research (Prochaska, Velicer, Fava, Rossi, & Tsoh, 2001; Prochaska et al., 2004; Velicer, Prochaska, Fava, LaForge, & Rossi, 1999). Until now, research on predictors of smoking cessation among adolescents found that amongst others, self-efficacy, social influence of peers knowledge, and beliefs about smoking are important predictors of smoking cessation (Dijk, Reubsaet, de Nooijer, & de Vries, 2007; Radtke, Scholz, Keller, Knaäuper, & Hornung, 2011).

Some suggestions may be made as a result of validity and reliability studies. The sample size of adolescent smokers in the study is expandable. However, it is not always possible to determine the number of smokers at the beginning of studies in school settings, because there is a wide variation of smokers in each school class. Future studies should vary the answering format in order to account for this explanation. Further research is also recommended to examine the processes of change scale in different samples in Turkey (e.g., in adults). In order to test long-term effects of the processes of change on smoking cessation, a longitudinal design would be needed. In addition, it is required to test the processes of change scale in relation to other concepts such as risk perceptions, outcome expectancies, attitudes, or descriptive norms to analyze their contribution to health behaviour change in more detail.

References

Afifi, T. O., Cox, B. J., & Katz, L. Y. (2007). The associationsbetween health risk behaviours and suicidal ideation andattempts in a nationally representative sample of young teens. Canadian Journal of Psychiatry, 52, 666–674.

Akindele, O. A, Babalola, F., Adesola, O. S., & Eme, T. O. (2010). Tobacco use amongst out of school adolescents in aLocal Government Area in Nigeria. Substance Abuse Treatment, Prevention, and Policy, 5, 24. http://dx.doi.org/10.1186/1747-597X-5-24

Anastasi, A., & Urbina, S. (1997). Psychological testing. NJ: Prentice-Hall.

Ahmed, R., Rizwan-ur-Rashid, McDonald P. W., & Ahmed, S. W. (2008). Prevalence of cigarette smoking amongyoung adults in Pakistan. Journal of Pakistan Medical Association, 58(11), 597-601.

Babatunde, O. A., Omowaye, O. A., Alawode, D. A., Omede, O., Olomofe, C. O., & Akinyandenu, J. (2012). Smoking prevalence, willingness to quit and factors ınfluencing smoking cessation among university students in a Western Nigerian State. Asian Social Science. 8(7), 149-156.

Boden, J. M., Fergusson, D. M., & Horwood, L. J. (2007).Cigarette smoking and suicidal behaviour: Results from a25-year longitudinal study. Psychological Medicine, 38, 433–439.

Bronisch, T., Höfler, M., & Lieb, R. (2008). Smoking predictssuicidality: Findings from aprospective community study. Journalof Affective Disorders, 108, 135–145.

Büyüköztürk, Ş. (2010). Sosyal bilimler için veri analizi el kitabı (12. Baskı). Ankara: PegemA Akademi Yayınevi.

Çelikel, F. C., Çelikel, S., & Erkorkmaz, Ü. (2009). Smoking determinants in turkish university students. International Journal of Environmental Research and Public Health, 6, 2248-2257. doi:10.3390/ijerph6082248.

Dağ, İ., 2005, Psikolojik test ve ölçeklerde geçerlik ve güvenirlik. Psikiyatri Psikoloji Psikofarmakoloji Dergisi, 13(4), 17-23.

Dijk, F., Reubsaet, A., de Nooijer, J., & de Vries, H. (2007). Smoking status and peer support as the main predictors of smoking cessation in adolescents from six European countries. Nicotine & Tobacco Research, 9, 495–504. doi:10.1080/14622200701587060

El-Mhamdi, S., Wolfcarius-Khiari, G., Mhalla, S., Ben Salem, K., & Soltani, S. M. (2011). Prevalence and predictors of smoking among adolescent schoolchildren in Monastir, Tunisia. Eastern Mediterranean Health Journal, 17(6), 523-8.

Fawibe, A. E., & Shittu, A. O. (2011). Prevalence and characteristics of cigarette smokers among undergraduates ofthe University of Ilorin, Nigerian Journal of Clinical Practice, 14, 201-5. http://dx.doi.org/10.4103/1119-3077.84016

Goodman, E., & Capitman, J. (2000). Depressive symptoms and cigarette smoking among teens. Pediatrics, 106, 748–755.

Hockenberry, J. M., Timmons, E. J., & Vander Weg, M. (2010). Smoking, parent smoking, depressed mood, and suicidal ideation in teens. Nicotine & Tobacco Research, 12(3), 235-242.

Hoeppner, B. B., Velicer, W. F., Redding C. A., Rossi, J. S., Prochaska, J. O., Pallonen, U. E., & Meier, K. S. (2006). Psychometric evaluation of the smoking cessation

Processes of Change scale in an adolescent sample. Addictive Behaviors 31, 1363–1372.

Iglesias, V., Cavada, G., Silva, C., & Caceres, D. (2007). Early tobacco and alcohol consumption as modifying risk factors on marijuana use. Revista de Saude Publica, 41(4),517-522.

Kim, Y. H. (2004). Psychological constructs to predicting smoking behavior among Korean secondaryschool students. Preventive Medicine, 38(5), 620-627.

McGee, R., Williams, S., & Nada-Raja, S. (2005). Is cigarettesmoking associated withsuicidal ideation among young people? American Journal of Psychiatry, 162, 619–620.

Odeyemi, K. A, Osibogun, A, Akinsete, A. O., & Sadiq, L. (2009). The Prevalence and Predictors of Cigarette Smoking among Secondary School Students in Nigeria. The Nigerian Postgraduate Medical Journal, 16(1), 40-45.

Osungbade, K. O., & Oshiname, F. O. (2008). Determinants of cigarette smoking among senior secondary school students in a rural community of southwest Nigeria. Nigerian Jounal of Medicine, 17(1), 40-4. http://dx.doi.org/10.4314/njm.v17i1.37353

Paavola, M., Vartiainen, E., & Puska, P. (2001). Smoking Sessation between teenage years and adulthood. Health Education Research, 16(1), 49-57. http://dx.doi.org/10.1093/her/16.1.49

Prochaska, J. O., Velicer, W. F., DiClemente, C. C., & Fava, J. (1988). Measuring processes of change: Applications for the cessation of smoking. Journal of Consulting and Clinical Psychology, 56(4), 520–528.

Prochaska, J. O., Velicer, W. F., Fava, J. L., Rossi, J. S., & Tsoh, J. Y. (2001). Evaluating a population-based recruitment approach and a stage-based expert system intervention for smoking cessation. Addictive Behaviors, 26, 583–602.

Prochaska, J. O., Velicer, W. F., Rossi, J. S., Redding, C. A., Greene, G. W., Rossi, S. R., et al. (2004). Multiple risk expert system interventions: Impact of simultaneous stage-matched expert system interventions for smoking, high fat diet and sun exposure in a population of parents. Health Psychology, 23, 503–516.

Radtke, T., Scholz, U., Keller, R., Knaäuper, B., & Hornung, R. (2011). Smoking-specific compensatory health beliefs and the readiness to stop smoking in adolescents. British Journal of Health Psychology, 16, 610–625.

Reitzel, L. R., Mazas, C. A., Cofta-Woerpel, L., Li, Y., Cao, Y., Businelle, M. S., Cinciripini, P. M., & Wetter, D. W. (2009). Subjective Social Status Affects Smoking Abstinence During Acute Withdrawal Through affective Mediators. Addiction, 105(5), 928-936. http://dx.doi.org/10.1111/j.1360-0443.2009.02875.x

Riala, K., Viilo, K., Hakko, H., & Räsänen, P. for the STUDY- 70 research group. (2007). Heavy daily smoking among under 18-year-old psychiatric inpatients is associated with increased risk for suicide attempts. European Psychiatry, 22, 219–222.

Salawu, F., Danburam, A., Isa, B., & Agbo, J. (2010). Cigarette smoking habits among adolescents in northeast Nigeria. The Internet Journal of Epidemiology, 8(1).

Sanchez, Z. M., Opaleye, E. S., Martins, S. S., Ahluwalia, J. S., & Noto, A. R. (2010). Adolescent gender differences in the determinants of tobacco smoking: A cross sectional survey among high school students in São Paulo. BioMed Central D Public Health, 10, 748.

Schermelleh-Engel, K., Moosbrugger, H., & Müller, H. (2003).Evaluating the fit of structural equation models: Tests of significance and descriptive goodness-of-fit measures. Methods of Psychological Research Online, 8, 23-74.

Schuck, K., Otten, R., Engels, R. C. M. E., & Kleinjan, M. (2012). The role of environmental smoking in smoking-related cognitions and susceptibility to smoking in never-smoking 9–12 year-old children. Addictive Behaviors, 37(12), 1400-1405.

Sims, T. H. (2009). From the American Academy of Pediatrics: Technical report–tobacco as a substance of abuse. Pediatrics, 124(5), 1045-1053.

Soteriades, E. S., & DiFranza, J. R. (2003). Parent's socioeconomic status, adolescents' disposable income, and adolescents' smoking status in Massachusetts. American Journal of Public Health, 93(7), 1155-1160.

Stanton, W. R., Oei, T. P., & Silva, P. A. (1994). Sociodemographic characteristics of adolescent smokers. Int. International Journal of the Addictions, 29(7), 913-925.

Tyas, S. L., & Pederson, L. L. (1998). Psychosocial factors related to adolescent smoking: A critical review ofthe literature. Tobacco Control, 7, 409-420.

Velicer, W. F., Prochaska, J. O., Bellis, J. M., DiClemente, C. C., Rossi, J. S., Fava, J. L., et al. (1993). An expert system intervention for smoking cessation. Addictive Behaviors, 18, 269–290.

Velicer, W. F., Prochaska, J. O., Fava, J. L., LaForge, R. G., & Rossi, J. S. (1999). Interactive versus noninteractive interventions and dose–response relationships for stage-matched smoking cessation programs in a managed care setting. Health Psychology, 18, 21–28.

Yahya, S. J., Hammangabdo, A., & Omotara, B. A. (2010). Factors influencing the onset of cigarette smoking among adolescents in Konduga local government area. Nigerian Journal of Medicine, 19(3), 275-8. http://dx.doi.org/10.4314/njm.v19i3.60184

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Critical Thinking And Problem Solving: Can Technology Be A Tool? It's As Simple As I-V-C!

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Abstract. In the age of the digital residence, it has become imperative for both new teachers and experienced teachers to meaningfully incorporate the technological tools in daily teaching. Using technology daily as an essential instructional tool enhances the opportunities to meet the instructional needs of all students. This study presents the collaborative efforts of a higher education faculty member and a new teacher, engaged in using interactive video conferencing to enhance the cyclical teaching and learning process of a group of fourth grade students. Ultimately the project supported that technology should be used in all classrooms to enhance student performance on authentic applications and be integrated into core aspects of the daily curriculum, (Miranda & Russell, 2012). The study also points to the fact that collaboration between higher education and p -12 school faculty can make a positive difference for all participants.

Keywords: technology tools; university-school partnership, collaboration

Introduction

There is no doubt that education in the 21st century has been greatly impacted by technology. The Alliance for Excellent Education increased its focus on the role of digital learning and technology during the last few years (Alliance for Excellent Education, 2012). During this time the Alliance adopted this definition of Digital learning:

> Digital learning is any instructional practice that is effectively using technology to strengthen the student learning experience. Digital learning encompasses a wide spectrum of tools and practice, including using online and formative assessment, increasing focus

> and quality of teaching resources and time, online content and courses, applications of technology in the classroom and school building, adaptive software for students with special needs, learning platforms, participating in professional communities of practice, providing access to high level and challenging content and instruction, and many other advancements technology provides to teaching and learning (Alliance for Excellent Education, 2012, p. 1)

It is this definition of digital learning that must be embraced and implemented effectively as part of the teaching and learning process by teacher preparation programs, as well as P-12 school administrators and teachers, to enable us to graduate students prepared to be active citizens in our rapidly changing, global society. To make this goal a reality faculty members from higher education must become involved in school-based initiatives where technology is used to enhance the learning of P-12 students, and use their experiences to impact teacher education candidates as they prepare for classroom teaching. This study sought to determine the impact of a higher education professor collaborating with a classroom teacher in using interactive video conferencing (IVC) on the teaching and learning process of fourth grade students across content areas.

Technological Reformation

The late 20th century began the technological reformation in public schools with computer-assisted instruction, word processing, and other digital devices that many educators used to improve and enhance their instruction. Today students demand that technology is an integral part of their classroom learning experiences in ways beyond ordinary (Metlife, 2011). As digital natives (Presnky, 2010) they are not just information gatherers but they are information creators (Robin, 2008), accustomed to feedback, collaboration, and ease of implementation. Technology should be an essential component of actively engaging learners, and active engagement is critical to keeping students in school (Metlife, 2011).

Unfortunately however, it is often the case in many public school classrooms that technology is not used in the daily teaching and learning process (Zucker & Hug, 2007). Effective use of technology in the classroom is more than requiring students to have a netbook to read their textbook from a fancy word processor. For students today their schema is embedded in technological dimensions as they do not have first-hand knowledge of life prior to computers and the Internet, making the global society a natural part of their personal and academic life (Kent, 2012). Linking technologies that many students use daily at home to learning at school enhances the opportunities for students to see the relevance in what they are learning and the transferability to novel situations (Godzicki, Godzicki, Krofel, & Michaels, 2013).

Classroom Adventures

The Internet and other technologies must have a prominent place in today's classroom (McBride & King, 2010). A meta-analysis of the research on the impact of

digital technologies on learning consistently revealed positive outcomes for public school classrooms (Higgins, Xiao, & Katsipataki, 2012). Thoughtful implementation of technological resources should significantly enhance learning and create a positive learning environment (McBride & King, 2010). Although there are countless ways technology can and should be implemented in elementary classrooms, presented in this literature review are selected examples that the readers may find beneficial and provide a foundation for the premise of this research.

In elementary schools blogging can potentially boost cognitive ability and improve student writing while in an active learning environment. In elementary school blogging is still in the early stages of implementation, but there is evidence to suggest that when students have an audience, that is, their writing is subject to reader comments, then their interest in writing and quantity of writing increases (Jackson, 2012). A study with fifth-graders by McGrail and Davis (2011) revealed that as the students engaged with the teachers through blogging, the sense of audience helped improve their writing and confidence about writing.

Podcasts are another technological tool that can be used as a way to enhance vocabulary and other instruction across all content areas (Putman & Kingsley, 2009). A study by Putman and Kingsley (2009) revealed that using podcasts enhanced the vocabulary development of fifth grade students, and the students reported having a positive learning experience using podcasts. Moreover, teachers can have content experts or guest speakers speak to their class by way of a podcast (EdTechTeacher, 2013).

Interactive whiteboards (IWB) can be used to engage and motivate students as they incorporate a range of digital resources in the exploration of content (Manny-Ikan, Tikochinski, Zorman, & Dagan, 2011). Murcia and Sheffield (2010) conducted a case study where they found that using IWBs increased student participation in science conversations, engaged teachers in more open questioning techniques, and allowed for more think time from the students.

The use of the multi-dimensional tool of video conferencing offers a way to engage auditory and visual learners. Interactive video conferencing (IVC) has become an accessible way for teachers and students to connect globally (Forrester, 2009). Using simple Internet based tools such as Skype, or other video conferencing systems, they can talk, share ideas, and create incredible learning experiences with people around the world. In 2010, there were approximately 30,000 video conferencing systems in U.S. Schools for the purpose of connecting with students around the world (Svitak, 2010). Video conferencing tools allow educators and students to connect with experts in "real-time," take virtual field trips, collaborate with students on projects outside of their school and city, engage in distance learning courses, and participate in professional development. The Internet knows no physical boundaries, therefore the opportunities for collaborating and learning across time and space are limited only by our personal restrictions.

The impact of video conferencing on student academic performance has been inconclusive thus far (Greenberg & Zanetis, 2012). Most of the research has lacked rigorous controls and been with small sample populations that were not generalizable to large student populations (Cisco, 2011). However digital video was shown to improve math achievement in sixth and eighth grade students (Boster, 2004); early childhood educational programs demonstrated significant academic achievement in many academic areas (Bryant, Alexander, & Braun, 1983); and access to video promotes problem-solving abilities, especially through collaboration (Journell & Dressman, 2011).

Teachers must incorporate technology into instruction in order to reach the 21st century students who are submerged in technological tools as a natural part of their daily lives. Not only do the students embrace digital media, they also rapidly adapt to the ever-changing technology. Students today more than ever before, are comfortable exploring technology and have come to expect the immediate feedback of digital media. Teachers must capitalize on this by making a cultural shift in education, making technology student centered (Dessoff, 2010) by integrating technological tools like blogging, digital stories, podcasts, video conferencing, and interactive white boards into the daily life of all classrooms. Technological tools provide the mechanism for collaborative, active, hands-on, engaging learning to be an integral part of the daily classroom experience. Implemented in this manner, technology can enhance critical thinking while scaffolding the success of students expected upon becoming college and work force ready. This article presents the collective efforts of a classroom teacher and a university professor in effectively implementing technology as an instructional tool to enhance the teaching and learning of a group of fourth grade students.

Learning Live!

Participants

In the spring of 2013, a technologically savvy fourth grade teacher in a large urban school district in southern Alabama and a literacy professor at a local university worked together to help make learning come alive for a diverse group of 21 fourth grade students, 9 males and 12 females. There were a variety of learning abilities present, with four students identified as below grade level in reading and four identified as below grade level in math. The class had 9 students that were on free or reduced lunch, and 10 black, 10 white, and one Asian student.

The partnership was a natural outgrowth of the teacher being a recent graduate from the institution, and the school where the teacher taught was also an established partner in the teacher preparation program. Both participants were committed to developing the time necessary to planning and preparation for the project to be successful. Much like the findings of Miranda and Russell (2012), the teacher involved in this project believed that technology was beneficial for a broad range of instructional purposes.

This group of fourth grade students experienced using technology as a tool for learning on a daily basis, across all subject areas. For example, prior to this project her students commonly read books on eReaders, regularly blogged with college students about reading and math concepts, engaged in project based learning through the creation of Lego WeDo, and connected with local, national, and international classrooms. Likewise, the classroom teacher and the professor involved in this project embraced the research of Charles Fisher and David Berliner (1985), Robert Marzano (2001) and his colleagues, as well as John Hattie (2009) that support the notion that carefully planned and implemented instructional practices result in increased student achievement as the amount of rigor and relevance is increased. Thus the classroom teacher's philosophy of active engagement in meaningful learning activities mirrored that of the higher education faculty member, making this project exhilarating for both the educators and students.

Project Beginning

The project began as the classroom teacher engaged in conversations with the professor regarding technological methods to meet instructional objectives in the content area of social studies. While the focus was to be on history as the content, enhancing critical thinking, problem solving, and collaboration were the central learning goals, with a focus on project based learning. In Alabama, Alabama History is first studied in fourth grade, with standards addressing the past to the present in the historical context of the state. With this premise the classroom teacher invited the literacy professor to engage with her students using social studies standards as a gateway to learning, while also incorporating literacy and math standards, embracing various technological tools as the instructional modality.

The project was multi-faceted but the overarching lesson design was to engage in interactive video conferencing (I-V-C) sessions using Skype between the professor and the fourth grade students as the professor traveled to three different states, reading the class books about these states. Ultimately the project culmination was the students using their knowledge to analyze state features, comparing and contrasting state characteristics through the creation of a quadruple Venn Diagram, and presenting their learning to their peers and the professor.

Going Live!

The teacher's reflections revealed that there was just something electric about the live conversations between the students and the professor that were occurring in real time, but thousands of miles apart. In March the professor was on location in Columbus, Ohio, and in April she was in Denver, Colorado and San Francisco, California; all were a great distance from Mobile, Alabama, and much further than most of the students in the class would ever travel. In each of the sessions the professor preselected a nonfiction text that provided an overview of the state where she was visiting The students and teacher completed the beginning elements of a K-

W-L (Know-Want to Learn-Learn) chart together, and they predicted what they would learn about the new state through the session.

The professor would share with the class a little about the city and things that she had personally experienced in the city during her visit, such as the climate and scenery. Then the lesson would continue with the professor sharing preselected elements of the text, not only stopping to discuss various facts and interact with the students, but also reviewing text features in the nonfiction selection that she used to help determine important information.

After reading the book, the professor would incorporate numeracy through the cost of the round-trip plane ticket to travel to the state from Mobile, Alabama, the cost of the hotel stay, and meals. The students would compare this information from each trip, and researched the cost of local hotels and dining out in order to compare the information their home state as well. The professor would conclude the lesson encouraging the students to think about their new learning, and with the approximate date of the next session. The IVC sessions each lasted approximately 30 minutes.

At the conclusion of the lesson the students thought about their new learning in relation to what they had learned about Alabama, comparing and contrasting the information. The classroom teacher spent a few minutes after the session debriefing with the students, completing the "L" (what we "learned") on the K-W-L chart, and helping them make connections to their prior learning with the new learning. The teacher saw the critical thinking and problem solving skills become enriched for her students through each session. She claimed that the process was essentially as simple as IVC!

In the late spring the professor made her first "in-person" visit to the fourth grade class. Another exciting moment for both the students and professor, as the visits from various states now became more real by meeting the traveler in real life. The students presented their final projects, a quadruple Venn diagram, giving facts about each state and highlighting the differences and the instances where they found that all four states were alike. The presentations revealed that students learning and excitement in sharing with the professor.

Data

The professor and classroom teacher engaged in on-going conversations throughout the project, and wrote reflections after each session. Notes were used to record the conversations for future analysis and reflection regarding the process, successes, and challenges of the experience from both the perspective of the professor and classroom teacher. The teacher lead reflective conversations with the students, taking notes to their responses to collect data on their perceptions of the using technology as an instructional tool in this endeavor. In addition, the teacher took

anecdotal records of the students as they worked in small groups on each element of the project.

The classroom teacher included both formative and summative assessments in language arts, reading, social studies, and math as they aligned with curricular objectives for the grade level. The assessments were project-based, allowing the teacher to further enhance the students' opportunities for collaboration and problem solving with their peers. For example, in English Language Arts the students worked in groups and were evaluated on the use of a K-W-L chart to organize their thinking after each IVC session, and then using the organizers to create a synthesis of their learning in a quadruple Venn. They were responsible for research, writing, using electronic and traditional sources of informational text, and presentation of their findings. In mathematics the students were evaluated in determining which computational skills they needed to use to solve problems related to mathematical comparisons, and then solving the problems. They also created graphs to represent the various costs of elements of the trip and used the graphs to create and answer questions. In social studies the students were evaluated as they compared and contrasted different geographical regions, determined how geographical features of the land impacted industry, and made the historical connections between basic state facts, such as the name of the state, state flower, and state song with the origin. In addition technology standards were met as students were engaged in interactive video, followed by using technology to research and collaborate with their peers.

Results

The teacher reported that the IVC lessons were extremely motivating, resulting in the students wanting to stretch themselves academically, to really think critically about what they were learning in history, math, and language arts in effort to create a project with their group that was unlike the others. Over the course of the project, the students successfully met many objectives across the content areas. The teacher reported that the project had a broad impact, as the students were able to transfer their knowledge and skills from this project to many other project-based learning opportunities that were structured for them.

The professor, students, and classroom teacher engaged in meaningful dialogue about the content learned in both social studies and math, and the perceived benefits of using technology to enhance the teaching and learning. The fourth grade teacher and higher education professor in this study reflected the findings of Parkinson and Welsh (2009), that much of the success of the innovation was found in spending the time preparing for the collaboration, including how the teacher set-up the lesson prior to the session, the IVC session itself, the discussion following the session, and the culminating project.

Through discussion, the classroom teacher revealed that this collaborative effort resulted in, "…the most rewarding professional learning experience I have

participated in thus far as a classroom teacher." And, for her students, "an opportunity for my students to be involved in a meaningful learning experience, with IVC as the vehicle, whereby they deepened their knowledge of content and sharpened their problem solving skills."

Through reflective conversations with the teacher, the students reported that the IVC sessions made learning the information more exciting, and they looked forward to receiving the call. Though self-reported, the information from the students was supported by the research of Mouza (2008), the technology helped create an authentic learning context, making the learning more meaningful for the students. There was an added dimension to the lessons that simply would not be present by reading to the class while in the class or showing them a video.

The teacher saw her students genuinely excited about learning, looking forward to the sessions and what they were going to learn. The teacher said it was amazing what her students were able to remember about each state and transfer their learning in other areas of learning, such as in their writing and arithmetic. The teacher was able to use the final project as a project-based assessment in social studies, language arts, and math, and the students also mastered various technology standards. Quantifiably, 100% of the students met the objectives assessed through this project-based learning endeavor. And though she was unable to separate the learning from this project in order to directly correlate it with academic achievement on end of quarter tests, she was confident that these IVC sessions that all facilitated meaningful conversations, writing, thinking, problem solving and the projects definitely contributed to her students positive achievement results. Without a doubt, this work supported the findings of Tricia Smith (Vartek, 2012), that is, the students had increased opportunity to collaborate with their peers, provide peer tutoring, and accomplish a more complex task in evaluating the information to create a quadruple Venn Diagram.

Being actively involved in the teaching and learning of children impacted the professor's personal professional development as she strived to make the learning relevant to the students. Having conversations with the classroom teacher and the students stretched her thinking in regard to the content, teaching strategies, and relationships with the students. For the professor, the classroom connection in this project, both virtually and face-to-face, once again impacted her relevance, recency, and relational aspects of public school teaching.

Implications

The opportunities for using technology to enhance instruction are simply endless. This study adds to the research that interactive video conferencing, used as a teaching and learning tool, has a positive impact on the instructional process. Likewise, teachers must embrace technology for the purpose of instruction and learning rather than for the sake of the technology itself. It is ultimately the impact on student achievement that must be the driving force in using instructional

technology. Student achievement now must include far more than basic reading and math skills. Achievement must also encompass the critical thinking, problem solving, collaborative nature of working in the "real world" that is now a simple expectation.

The classroom teacher was elated with the partnership with the university professor. As supported by Kati Haycock (2002), cooperation between K-12 and higher education is simple essential, and this project highlights that connection. The teacher routinely used technology as a teaching and learning tool, but adding the element of working with a local university professor over an extended period of time added a new learning dimension for her, as well as for her students.

As with most innovations, this one also had its share of challenges. First, there were issues with the school's Internets ability to support Skype without interruption or delays. Through persistence, the sessions were successful, but the technological difficulties were distracting. Second, scheduling the sessions was challenging. There were differences in time zones, along with both the school day schedule and the professor's daily schedule that all had to be negotiated to make time for the sessions. Finally, the finding the time for the professor and teacher to plan each session and debrief following the sessions was never easy. It required flexibility and a conscious effort to keep the end goal and potential benefit at the forefront.

Even though the technological revolution has overtly transformed our culture in the past few decades, its impact in the classroom has not kept the same pace (Miranda & Russell, 2012). The teacher involved in this study believed that technology was important for teaching and learning, implemented various technological tools consistently in her classroom, and professed that her students experienced academic success that was directly related to using technological tools as an integral part of her instructional tool belt. As supported by Miranda and Russell (2012), it may be implied that the more teachers use technology, the more they see the value of using the technology as an instructional tool, the more confident they become, and the more likely they are to instruct students to use technology, allowing for the use of technology to positively impact the achievement of students.

Districts must focus resources on providing the professional development and support teachers need to decrease the obstacles related to technology integration (Miranda and Russell, 2012). As teachers see successful implementation of technology from their peers, they will become more likely to see technological tools as a means to engage their students in meaningful learning. Just like teachers help each other by sharing core concepts to create lesson plans, teachers can share digital files and ideas, tools, and responsibilities to spark innovation and learn from each other. It is technology implementation throughout the school career that will help American students become critical thinkers and better able to proficiently use technology in problem solving situations.

Conclusions

Teachers must first believe that technology can be used to enhance the critical thinking and problem solving skills of their students across the curriculum. They must couple this belief by embracing the challenge of finding the mechanism and time to learn the instructional uses for technology, and to implement the technology for learning purposes rather than omitting these technological tools from their classrooms. As with IVC, they may find that technological tools that have been around for some time have been perfected, making positive results for their students' learning, and positively impact their instructional planning and delivery time. Institutions of higher education must focus on preparing teachers who embrace technology as a teaching and learning tool, and public schools must provide the professional development needed by the inservice teachers so they are prepared to use technological tools in their classroom. Technology expands students' opportunities to collaborate with their peers through exploration, planning, creating and problem solving. The opportunities are absolutely endless, and expand every day. However, in many classrooms we rarely, if ever, see technology used for teaching and learning. Paper, pencils, and hardbound dictionaries are in abundance, but the tools that students are expected to use in their jobs in their not-so-distant future are locked in a closet (Kent, 2012).

Faculty from higher education have a responsibility to students. They must prepare teachers to employ teaching strategies that actively engage the learners, and expand learning expectations and opportunities by maximizing the technological tools that are available for students. The students involved in this project were able to develop firsthand technological experience that they were able to connect to their learning. Learning through listening, writing, and reading via Skype (IVC), skills that are applicable to both traditional and technological mechanisms, are transferable to future experiences, as the content knowledge learned was used to create their own products through project-based learning. The project promoted both individualized learning, as each student assimilated notes during Skype sessions and analyzed them in relation to their learning about Alabama; and collaboration, as they had meaningful class discussions and worked together to create a quadruple Venn Diagram. As this group of students promoted to the next grade, it is now their expectation to have these technological tools as an integral part of their daily education. Inherent in this statement is the question: Does their next teacher rise to the challenge? The possibilities are simply endless!

References

Alliance for Excellent Education. (2012). *The digital learning imperative: How technology and teaching meet today's education challenges*. New York, NY: Author.

Boster, F.J., & Staff. (2004). 2004 united streaming evaluation: 6th and 8th grade mathematics in the Los Angeles Unified School District. Retrived from http://streaming.discoveryeducation.com/home/pdf/LA_Summary.pdf

Bryant, J., Alexander, A.F., & Braun, D. (1983). Learning from educational television programs. In Howe, M.J.A. (Ed.) (1983). *Learning from television: Psychological and educational research.* London: Academic Press.

Cisco. (2011). *How interactivity and rich media change teaching and learning* (Video). Author.

Dessoff, A. (2010). Reaching digital natives on their terms. *District Administration*, *46*(4), 36-42.

EdTechTeacher. (2013). Podcasting in and out of the classroom. Retrieved from http://edtechteacher.org/index.php/teaching-technology/presentation-multimedia/podcasting

Fisher, C., & Berliner, D. (1985). *Perspectives on instructional time.* New York, NY: Longman.

Godzicki, L., Godzicki, N., Krofel, M., & Michaels, R. (2013). Increasing motivation and engagement in elementary and middle school students through technology-supported learning environments. *Online Submission*.

Greenberg, A. D., & Zanetis, J. (2012). *The impact of broadcast and streaming video in education.* Cisco: Wainhouse Research.

Hattie, J. (2009). *Visible learning: A synthesis of over 800 meta-analyses relating to achievement.* New York, NY: Routledge.

Haycock, K. (2002, April). Proceedings from Learning Connection: Why is K-16 collaboration essential to educational equity? In *Gathering Momentum: Building the Learning Connection Between Schools and Colleges (pp. 14-19).* Kansas City: MO.

Higgins, S., Xiao, Z., & Katsipataki, M. (2012). The impact of digital technology on learning: A summary for the education endowment foundation. Durham, UK: Education Endowment Foundation and Durham University.

Forrester, D. (2009). Global connections: Web conferencing tools help educators collaborate anytime, anywhere. *Learning & Leading With Technology*, *36*(5), 24-25.

Jackson, L. (2012). Blogging? It's elementary, my dear Watson! *EducationWorld.* Retrieved from http://www.educationworld.com/a_tech/tech/tech217.shtml

Journell, W., & Dressman, M. (2011). Using videoconferences to diversify classrooms electronically. *The Clearing House, 84,* 109-113.

Kent, A. (2012). *Teaching writing the Draft Book way.* Dubuque, IA: Kendall Hunt. Manny-Ikan, E., Tikochinski, T. B., Zorman, R., & Dagan, O. (2011). Using the interactive white board in teaching and learning- an evaluation of the SMART classroom pilot project. *Interdisciplinary Journal of E-Learning & Learning Objects, 7,* 249-273.

Marzano, R., Pickering, D., & Pollock, J. (2001). *Classroom instruction that works: Research-based strategies for increasing student achievement.* Alexandria, VA: Association for Supervision and Curriculum Development.

McBride, R. & King, V. (2010) Proceedings from SITE: *Improving writing skills using blogging in the Elementary Classroom: Choosing Tools They Use*. San Diego, CA.

McGrail, E. & Davis, A. (2011). The influence of classroom blogging on elementary student writing. *Journal of Research in Childhood Education, 25*(4), 415 – 437.

Metlife (2011). *The MetLife survey of the American teacher: Preparing students for college and career.* New York, NY: Author.

Miranda, H. P. & Russell, M. (2012). Understanding factors associated with teacher-directed student use of technology in elementary classrooms: A structural equation modeling approach. *British Journal of Educational Technology, 43*(4), 652-666.

Mouza, C. (2008). Learning with laptops: Implementation and outcomes in an urban, under-priviledged school. *Journal of Research on Technology in Education, 40*(4), 447-443.

Murcia, K., & Sheffield, R. (2010). Talking about science in interactive whiteboard classrooms. *Australasian Journal of Educational Technology, 26*(4), 417-431.

Parkinson, D. D., & Welsh, K. M. (2009). Is authentic cross-cultural collaboration possible between universities and public schools within a professional development school model? Perceptions from the field. *School-University Partnerships, 3*(1), 14 – 27.

Presnky, M. (2010). *Teaching digital natives: Partnering for real learning.* Thousand Oaks, CA: Corwin Press.

Putman, M.S. & Kingsley, T. (2009). The atoms family. *The Reading Teacher*, *63*(2), 100-108.

Svitak, A. (2010). 5 Ways Classrooms Can Use Video Conferencing. Retrieved from http://mashable.com/2010/04/21/classroom-video-conferencing/

Vartek. (2012, April). iPad lab offers opportunities for collaboration, social interaction, and student enrichment. Retrieved from http://www.vartek.com/index.php/testimonials/classroom-success-stories/126-ipad-lab-offers-opportunities-for-collaboration-social-interaction-and-student-enrichment

Zucker, A. A., & Hug, S. T. (2007). A study of the 1:1 laptop program at the Denver School of Science & Technology. *Online Submission*.

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An Examination of the use of Technology in the Teaching of History: A Study of Selected Senior High Schools in the Cape Coast Metropolis, Ghana

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Abstract. This paper examines the state of the use of technology in the teaching of History in selected Senior High Schools in the Cape Coast metropolis. The study was modelled along the descriptive survey design with a sample size of 159, comprising 153 History students and 6 History teachers. The instruments used were the questionnaire and the interview guide. The findings revealed that technological tools such as computers, projectors, internet, and audio-visuals, can be employed in teaching History. Again, it was found that teachers have positive perceptions about the use of technology in teaching History. Students were also found to portray positive attitudes in class when technology is used in teaching. Finally, the study revealed that teachers face the challenges such as unavailability of technological resources, inadequate time, and lack of motivation, in their attempt to use technology in class. The study ends by recommending that in-service training sessions should be organized for History teachers as a way of exposing them to the types of technology and how to use them in teaching. Again, the education ministry should provide technological resources needed by schools, and heads of institutions should introduce incentives to motivate teachers to use technologically-oriented pedagogies for their lessons.

Keywords: Technology; History; Attitude; Perception

1. Introduction

The changing trend of the world has made technology a basic component of every human organisation. According to Amedzo (2007), the world has reached a stage where a person without basic computer knowledge finds it almost impossible to function properly in society. Today, mention of technology

generally conveys the idea of advancement, improvement, and progress, whereas the lack of technology stirs feelings towards a practice as archaic, ineffective, and awkward (Dunmire, 2010). Technological advancement over the years has led to significant and ubiquitous changes in human affairs - changes that hitherto were impossible or at least minimal. The agricultural sector, the health sector, the manufacturing sector, security agencies, among others have all witnessed progress precipitated by technology. This notwithstanding, progress in application of technology in the field of education has been slow (Afari-Kumah & Tanye, 2009). Vrasidas & McIsaac (2001) indicate that in rich industrialized nations like the United States, technology is abundant in schools and classrooms, but the situation regarding technology in schools is not the same in smaller countries. Africa, a developing region, for instance seems to be making lesser strides towards using technology as a means of instruction.

In Ghana, one area of concern regarding the use of technology is the educational sector. This sector seems to be lagging behind when it comes to integrating technology into teaching and learning. The situation in the second-cycle institutions is alarming as technological devices are mostly unavailable or insufficient. Improvement can however be seen at the tertiary level where "most universities are now moving away gradually from depending on lecture notes and textbooks only, to online courses and e-resources" (Afari-Kumah & Tanye, 2009, p.2). Ghana's education policy makers over the years have attempted to encourage the use of Information and Communication Technology (ICT) in the classroom through educational reforms and other policies but these attempts seem to have lost their substance partly because "the commitment of government to the provision of infrastructure for ICT policy implementation has been minimal" (Amenyedzi et al, 2011, p.153). A close look at the Senior High School level shows that apart from the introduction of ICT as a subject, most teachers do not infuse technology into their classroom instruction. Nevertheless, the numerous subjects taught in our schools ranging from the Arts to the Sciences demand the incorporation of technology. History, one of the elective Art subjects in the school curriculum by nature requires that teachers become innovative in methodology.

1.1 Statement of the Problem

The nature of every subject informs the teaching methods, instructional resources, as well as the assessment instruments and procedures that teachers must employ in handling it. The kind of approach adopted by teachers in teaching their subjects has a great bearing on the extent of students' like or dislike for that subject. The teaching and learning of History could be difficult as a result of its abstract nature. The consequence is that most students develop negative attitudes towards the subject. The perception of students about the subject is nothing short of it being described as dull and sterile, packed in content and lacking attractiveness, while others view it as a rote memorisation of facts and dates without any variations and innovations in the way it is taught and learned. Shane (2008) agrees with this opinion and contends that "unlike other subjects, such as mathematics and science, History/Social Studies provides a more static concentration of discourse without much variation in terms of

content from one classroom or school to the next" (p. 101). He adds that even as the form of presentation may vary, there is a basic component to the subject, which remains relatively consistent regardless of where it is taught and the person who teaches it. The situation demands that the subject is brought to life to facilitate understanding and to foster the interest of students in the subject. To achieve this, there is the need to use appropriate teaching methods as well as appropriate instructional resources to aid delivery. History teachers would have to be innovative by introducing new methods and resources into teaching the subject. As Field (2003) admits, History, like every national curriculum subject, has clear requirements to use technology but it seems that History teachers feel it a burden to make use of ICT. This implies that for a long time, History teachers have resorted to the old and dogmatic ways of teaching the subject without new technological innovations. As such more interest is being lost in the subject, and gradually, History is losing its place in Ghana's educational system.

1.2 Research Questions

The following research questions guided the study:

1. What types of technology can be used to teach History?
2. To what extent do SHS History teachers use technology in teaching History?
3. What are the perceptions of SHS History teachers on the use of technology in the teaching of History?
4. What are the attitudes of SHS History students when technology is used in History lessons?
5. What challenges do SHS History teachers face in using technology to teach History?

2. Review of Related Literature

This section reviews relevant theoretical and empirical issues underlying the study. The researchers identify and evaluate relevant previous studies related to the research. The theoretical review of literature focused on such issues as the meaning of technology, and the types of technology for teaching History. The empirical review of literature also looked at the extent to which History teachers use technology, perception of History teachers about the use of technology, History students' attitudes when technology is used in lessons, and challenges faced by History teachers in using technology in instruction.

2.1 Theoretical review

2.1.1 The Meaning of Technology

The term technology defies an all-embracing definition. Attempts at defining technology have had an unhappy history as researchers have had difficulty in coming to terms with the task of defining the concept (Rooney, 1996). Bijker et al (1987) contend that it is not necessary to devote a great deal of time and effort towards working out a precise definition of technology. They argue that the search for a precise definition is destined to fail because technology has no single meaning. This notwithstanding, few researchers have made the attempt to define the concept from their own viewpoints. For instance, Ayas (2006) defines technology basically as the process and tool by which humans modify nature to

meet their needs and wants and to make life easier and better. Hooper & Rieber (1995) contend that technology applies current knowledge for some useful purpose and uses evolving knowledge to adapt and improve the system to which the knowledge applies. Karve (2009) also conceptualizes technology as the knowledge of the manipulation of nature for human purposes. Technology influences and governs human behaviour, and impinges on societal behaviour, traditions and culture. As an entity that intervenes directly or indirectly in the life of human beings (Karve, 2009), technology could be seen as the use of human capabilities to satisfy peculiar needs or wants.

The advent of technology has led to remarkable developments in the field of education. The contribution of technology to the field of education has been variously described as educational technology (Adeyanju, 1999; Balogun & Abimbade, 2002). According to the Association for Educational Communications and Technology (AECT) (2004), educational technology is "the study and ethical practice of facilitating learning and improving performance by creating, using, and managing appropriate technological processes and resources" (p.1). In the views of Hooper & Rieber (1995), educational technology denotes the application of ideas from a variety of sources to create the best learning environment for students. This suggests that technology can be tailored to classroom instruction in order to create a supportive atmosphere that will enhance teaching and scaffold the learning of various subjects in the school curriculum.

2.1.2 Types of Technologies for Teaching History

A host of resources are available for teaching, courtesy the rapid changes in technology. Sofowora & Egbedokun (2010) contend that there are different kinds of technological resources that are useful for teaching Geography and History for that matter. These products of technology, according to them, include the internet, interactive digital television, video, web-based instruction, computers, and video conferencing. Fisher (2000) adds that "word processors, spread sheets, statistical packages, databases, simulations, teleconferencing, CD-ROMs, and the internet, can make History come alive in the classroom" (p. 49). Coupled with the above are other tools such as the braille and voice synthesisers for inclusive schools as well as projectors and audio resources. Grabe & Grabe (cited in Fisher, 2000) point out that computers offer the greatest potential for meaningful technology usage in History lessons.

Jenkins & Turpin (cited in Fisher, 2000) are also of the view that the internet is an unmatched tool and resource for teaching which when used with discretion, will be of immense value in the teaching of History. Audio resources can be used to play Historical speeches to stimulate interest and encourage learners to think critically about Historical events. Audio-visual resource like video, according to Oppong (2009), makes Historical events look real to students and thus reduces the abstract nature of History. Hypermedia or multimedia, presentation software, electronic encyclopedia or atlas, and simulation programmes are also important technologies for teaching History (Amengor, 2011). Powerpoint presentations for instance can be creatively used to link text, sound, movies and pictures to make Historical events vivid. The use of these technological tools

when combined with effective practical computer skills, may add a whole new dimension to the teaching and learning of History (Fisher, 2000), whose very nature is abstract.

2.2 Review of Empirical Studies

2.2.1 Extent to which History Teachers Use Technology

The use of technology in teaching various subjects has attracted the attention of many researchers and scholars around the world. A lot of studies have dealt with the topic and have come out with various results. A study conducted by Ruto & Ndaloh (2013) on the use of instructional materials for the teaching of History and Government in Kenya found that 62% of teachers in the study used textbooks frequently while 54% used maps. Again, 80% of the respondents are reported to have never used the radio in teaching History and Government in their schools with only 3% reporting frequent usage. These findings are corroborated by the results of a research conducted by Oppong (2009) which reported that apart from the History textbook, History teachers did not make use of other instructional and technologically oriented resources such as audio media, visual media and audio-visual media in History lessons. A similar study by Adeyinka (1989) also revealed that technology aids such as television and radio, slides, projectors, films and film-strips are either never used to teach History in majority of schools or only sometimes or rarely used in a few of them. The results of these studies show that the use of technological tools for instruction is an area which has not been explored by most History teachers. Likewise, a study by Yidana (2007) on teachers' level of technology adoption for instructional purposes revealed that 50% of participants were in the low technology users' category, 34.8% of participants were in the moderate technology users' category, while only 14.4% fell within the high users' category. This indicates that majority of teachers in the study were low-level users of technology, meaning they did not make extensive use of technological innovation in their teaching activities.

In a study on History teachers' use of ICT, Haydn (2001) revealed that few teachers claimed to make substantial use of ICT in their History lessons, while most respondents fell between 'some', and 'little' use. According to the study, all 42 respondents claimed to have used ICT at least once. Few teachers in the survey used computers in more than 10% of their History lessons, with the largest group falling between 1% and 5% of computer usage. In terms of the nature of computer use, responses indicated that computers were used much more frequently for researching information on Historical topics and the preparation of teaching materials than in the classroom itself. Almost all respondents said that they used television and video more often in the classroom than computers. Very few respondents, however, reported using ICT extensively for assessment purposes. Doppen (2002) also indicated in the results of a research that History teachers used computers for curricular and instructional purposes as well as administrative tasks, such as recording students' grades, and posting them on the Internet. Again, teachers in the study agreed on using technology to teach Historical thinking, multiple perspectives and Historical empathy. Studying the perspectives of social studies teachers on technology integration, Zhao (2007) reported that participants in the study

mentioned having used a variety of technology tools such as the overhead projector, television, video cassette recorder, and computers. Nine of seventeen participants noted that they used computers as a tool to facilitate presentation in their teacher-centered classrooms on a regular basis. Also, according to the study, while most participants mentioned using powerpoint presentations for lessons, others used Microsoft Word and then transferred information from the computer onto a television screen.

In another study by Gulbahar & Guven (2008), it was reported that teachers preferred printed materials, overhead projectors, television/video, radio cassette recorder, multimedia, computers and slide projectors for instructional aims. Again, teachers most frequently used computers to access information on the internet, communicate, do word processing and make slide presentations. Buabeng-Andoh (2012) examined teachers' skills, and practices of ICT in teaching and learning in Ghanaian second-cycle schools. The results of the study indicated that computer was almost always used by teachers, followed by the internet, with the least frequently used hardware being the overhead projector. Another study by Boakye & Banini (2008) on teachers' ICT readiness in Ghana indicated that 71% of teachers in the study did not use ICT in classrooms, 49% of teachers used ICT to prepare lesson notes, 55% of teachers had some knowledge of web browsing, 71% used email, and 78% made efforts to learn how to use the computer. The study concluded that most teachers were not prepared to integrate ICT into their teaching. In a summary of findings from integrated studies on educational technology, the United States Department of Education (2003) reported that 55% of teachers used technology frequently for instructional purposes, with 37% of teachers being less frequent users of technology for instruction while 8% reported no use.

The results of these studies indicate a somewhat low level of technology use among History teachers. This suggests that the conditions for effective technology use in History lessons are probably not in place, or History teachers are actually disinclined towards making extensive use of technology in their lessons.

2.2.2 History Teachers' Perception of Technology

Teachers are important elements in classroom interaction and their perceptions do have an impact on what they teach and how they teach it. Baylor & Ritchie (cited in Miima et al 2013) argue that the use of technology in the teaching and learning process depends to a large extent on teachers' perception, which is a key factor in determining their pedagogical practices. Gulbahar & Guven (2008) agree to this argument by contending that the attitudes and perceptions of teachers are major predictors of the use of new technology in instructional settings, and that these attitudes toward technology shape teachers' own experiences as well as experiences of the students they teach. Notwithstanding the powerful state of a particular technology, the extent to which it is implemented is determined by the attitudes its users have towards it (Huang & Liaw, 2005). This implies that the integration of technology into the curriculum is not likely to succeed without teachers' acceptance and commitment to

technology use (Zhao, 2007). The perception of teachers about the use of technology in lessons has been the focus of several researchers.

Amengor (2011) studied the perception of History teachers towards ICT in the teaching and learning of History. The study reported that 95.6 % of the respondents believed ICT made teaching more effective, 80.6 % believed ICT helped to meet the varying needs of students while 85.1% believed ICT increased their productivity. The results depict a fairly good perception towards technology. This is because the History teachers believed that the use of technology benefited them and their students as it made teaching effective, helped to meet the varying need of students, motivated their students, promoted collaboration among students, enhanced students' interest, and increased teachers' productivity. Studying the perceptions of Social Studies teachers towards the use of technology, Gulbahar & Guven (2008) reported that teachers believed that the use of technology will be of more advantage to them, but they lacked the basic skills of computer usage. The teachers also felt that their skills were lacking for other types of technology which could also be used as an aid in the classroom. Buabeng-Andoh (2012), explored teachers' perception of technology in giving instruction and revealed that majority of the respondents professed that technology can offer opportunities to teachers to obtain educational resources from the internet to enrich course content and also can improve the teaching and learning process. Again, majority of the respondents indicated that technology can enhance students' participation and feedback and also improve students' collaboration. The study concluded that teachers' perceptions on the application of technology in the teaching and learning environment was positive.

Reporting similar findings, Rampersad (2011) indicated that teachers perceived technology as an important motivational tool that encouraged them to be creative in their approach to teaching. Kandasamy & Shah (2013) analysed the knowledge, attitude and use of ICT among teachers and found that most of the respondents believed that computer is a valuable tool for teachers as it can change the way students learn in class. Again, respondents were of the view that the computer helps students understand concepts in more effective ways and also helps teachers to teach effectively. In another study by Miima et al (2013), teachers viewed technology as providing a rich environment for learners; providing valuable facilities to support student learning; assisting learners to access authentic current information; and making learning interesting due to learner involvement. The study however reported that most teachers felt the integration of ICT into teaching and learning was time consuming and delayed syllabus coverage. Other studies by Haydn (2001) and Enayati et al (2012) have established that teachers' have fairly positive views on the potential of technology to improve teaching and learning in History.

Largely, these findings give credence to the fact that teachers generally have a positive view about the use of technology in instruction and are willing to integrate technological resources into their teaching. As indicated, the way teachers perceive technology is crucial if technological integration into classroom

instruction is to be successful. It could therefore be said that History teachers who have positive perceptions about the usefulness of technology to teaching are likely to use more of such technology in their lessons. These positive perceptions must therefore be seen in teachers' meaningful adoption of technology in the teaching process.

2.2.3 Attitudes of History Students when Technology is used in History Lessons

Attitude, according to Volk et al (2003), is developed, and once established, can enable or inhibit further learning. It is difficult for teaching experience and preferred behavioural changes to be shaped in an environment where learners' attitudes are ignored (Ozdemir, 2012). Even though the development of positive attitudes in students is a difficult task, technology-based learning activities create an atmosphere of great engagement and dedication on the part of students which motivates even weak students to get involved in classroom tasks (Kassim et al, 2004). Turan (2010) points out that student mostly list History among their least favourite subjects. Similarly, Loewen (1995), argues that students view History courses as limited to reading the textbooks, memorizing facts, paying attention in class, and taking exams, giving them little or no chance for active participation (cited in Turan, 2010). This rather negative attitude towards the subject has led to a number of studies on technology-enhanced History education, which will hopefully change students' attitudes and increase their interest in the subject.

In a study on the attitudes of Turkish and American students towards technology enhanced History education, Turan (2010) reported that most of the Turkish and American students showed positive attitudes toward the use of educational technologies during History lessons. The students, according to the study, could focus and learn better when technological materials were used in classroom activities, and this increased their academic achievements. The findings of the study also showed that students could learn History better by watching a movie or documentary than they could by reading a textbook. The findings highlight the important place the use of technology, especially audio-visual materials, must take in fostering positive attitude towards History lessons. Doppen's (2002) study portrayed students' apparent liking for technology as most of them used computers often to learn about Historical events for the reason that it gave them a sense of control over their own learning. Also, students perceived the internet as an exciting way to learn History because it enabled them to search for information and tried to make sense out of the multiple sources they themselves found. Students could thus learn Historical events from multiple perspectives with the aid of the available technology. - Rampersad (2011) explored how students' interest, motivation and engagement in Modern Studies were affected by the integration of technology. The findings indicated that the use of technology helped to create more conducive learning environments for students learning. Again, technology was found to have served as a means of capturing students' interest which led to greater student involvement and engagement in lessons. According to the study, students were able to recall contents when technology was used since it incorporated the use of

concrete and real examples with which students easily identified. In a research conducted by Lavin et al (2011), students whose instructors used technology moderately or extensively in class were asked how the absence of technology would impact their learning on the course. Student responses indicated that the removal of technology from the class would have a negative impact on content learned in class, their attentiveness in class, their desire to take more lessons from that particular teacher, and their desire to take more lessons in the subject area. The study indicated that students who experienced technology in the classroom would rate a course less favorable if the technology was taken away. In that same study, students whose teachers did not use technology in class were questioned on how the addition of technology would impact their behavior. The responses suggested that courses that did not use technology could be improved by the introduction of technology into them.

The results of these studies imply that the use of technology in teaching, especially History lessons, is crucial in improving students' attentiveness and their desire to choose History courses ahead of other courses. In all, the studies show that students exhibit positive attitudes towards technology-enhanced lessons.

2.2.4 Challenges Teachers Face in Using Technology for Instruction

The application of a variety of technological approaches in teaching is crucial in enhancing teacher efficacy and improving students' learning. However, like any other endeavor, teachers are bound to face certain challenges in their attempt to integrate technology into their classroom activities. Raman & Mohamed (2013) observe that there are several obstacles that hinder the frequent use of technology among subject teachers. These obstacles include unavailability of infrastructure; lack of hardware and software; lack of access to the internet; lack of ICT competent teachers; insufficient training; resistance to change and insufficient knowledge possessed by teachers; lack of technical support; insufficient funding; and lack of appropriate ICT policies (Maholwana-Sotashe, 2007). According to Anderson (2008), most of these challenges arise as a result of the required changes that accompany the introduction of new technology into the classroom. In the view of Anderson, many educators feel that the onset of technology-based instruction is intimidating, intrusive, and aimed at replacing traditional modes of instruction. As such, identifying the possible challenges to technology integration in schools is an important step in improving the quality of teaching and learning and making teachers proactive adopters of technology in the future (Bingimlas, 2009)

Doppen (2002) examined the factors that affected History and Social Studies teachers' use of technology in classroom instruction and reported that the major barrier to the use of technology was teachers' own self-inefficacy. The study revealed that although the state of the technology infrastructure, whether optimal or inferior, did not appear to matter, it was the teachers' individual disposition that determined whether they integrated technology in the classroom or not. Haydn (2001) also revealed in a study that 30 out of 42 History teachers indicated lack of time to plan how to integrate computers into History

lessons as the most influential, and the most common barrier to ICT use. This was closely followed by difficulty in getting access to computers, and the pressure to cover curriculum content. Other barriers indicated by the respondents were lack of confidence or knowledge on how computers work; anxiety about classroom management implications of the use of computers; and ideological resistance to the use of computers. The ideological resistance, according to the study, was because most respondents did not believe that computers have much to offer in developing students' Historical knowledge and understanding. Amengor (2011) discovered that History teachers face numerous barriers which include insufficient time to prepare instructional materials using ICT; inadequate technical knowledge to prepare instructional materials using ICT; lack of access to computers, overhead projectors, printers and scanners; insufficient instructional software; absence of a reward system to encourage ICT usage; and deficiency in professional development opportunities for teachers.

A study by Vrasidas et al (2010) reported that 81.4% of the respondents viewed the length of the content to be covered as a barrier to technology use. Time constraint was another challenge indicated by 71.7% of respondents, while 53.5% cited unavailability of infrastructure. Again, 50.2% of participants reported lack of classroom support for teachers, 43.4% indicated lack of participation of teachers in decision making while 37% indicated the need for professional development. Another study by Miima et al (2013) revealed that both extrinsic and intrinsic factors hindered the adoption and use of ICT in teaching and learning. The results of the study revealed that all of the teachers lacked adequate time and therefore were reluctant to integrate ICT in their teaching and learning activities. Also, 89% of teachers lacked confidence, 100% lacked competence, while 78% reported resistance to change and lack of computer facilities in their schools. Kandasamy & Shah (2013) reported in a study on teachers' knowledge, attitude and use of ICT that 80% of the respondents faced the obstacle of inadequate time, 70% of the respondents agreed to limited knowledge on how to use technology, while 60% of them indicated limited understanding on how to integrate ICT into teaching. Moreover, 80% of the respondents revealed lack of software or websites that support teaching and learning. Nuuyoma (2012) explored the challenges faced by English language teachers in integrating ICT in the teaching of reading and writing. The results of the study revealed the following challenges: lack of teacher training; inability to operate ICT facilities; lack of ICT resources; lack of motivation from the school management; lack of parental involvement; and overcrowding in the classrooms. Adebi-Caesar (2012) in a study also reported three major barriers preventing the use of technology in Senior High School classrooms in Ghana. These barriers, according to the study, include lack of training in the usage of technology; lack of knowledge about computers; and the little or no previous experience in the use of technology.

The results of these studies are somewhat skewed to one direction. The literature indicates that insufficient time, unavailability of resources, lack of confidence, competence, technical support, motivation, as well as lack of institutional support are the major barriers teachers encounter in their attempt to integrate

technology into teaching. These challenges tend to thwart the efforts of teachers and educators towards a meaningful integration of technology into the classroom setting.

3. Methodological Considerations

3.1 Research design

This study is modelled along the descriptive survey design. The descriptive survey allows for the collection of data in order to test hypotheses or answer questions regarding the state of the subject of study (Gay, 1987). According to Fraenkel and Wallen (2000) information gathered from the descriptive research is useful in diagnosing a situation as it involves describing, recording, analysing and interpreting existing conditions. Creswell (2002) also notes that a survey study is useful in describing the attitudes, opinions, behaviours or characteristics of a particular population.

3.2 Population

The study was conducted in the context of three (3) selected Senior High Schools located within the Cape Coast metropolis. Specifically, the population comprised both History teachers and form two History students in the selected schools. The total population was 271, made up of 265 form two History students and 6 History teachers. The researchers chose form two students for the study on the basis that they had been exposed to enough topics in History and were also available to respond to the instruments. However, form one students were not used because they had reported to school not long ago and had barely completed any History topic. Form three students, on the other hand, were at the time of data collection, busy with their mock examinations and so could not make time to respond to the instruments.

3.3 Sample and Sampling Technique

The sample size for the study was 159 respondents, made up of 6 History teachers and 153 form two History students, representing 58% of the total population. This was in line with Krejcie & Morgan's (1970) suggestion that with a population of 271, a sample size of 159 should be chosen for the study. Since the number of History teachers was few, the researchers employed the census method to select all 6 History teachers from the selected schools. To ensure that the student sample of 153 is more representative of the student population in each school, the stratified sampling method was used to select 58% of form two History students from each of the schools, using each school as a stratum. In each school or stratum, the simple random sampling using the lottery technique was then employed to ensure a proportionate selection of the sample size from the schools. With this technique, the names of all form two History students in each school were written on pieces of papers and the desired sample was selected by picking the required number of papers. Students whose names were picked were those included in the sample. This together with the 6 History teachers made up the total sample size of 159 for the study.

3.4 Research Instrument

The mixed method is the chosen methodological philosophy underlying the study, and as such, both the quantitative approach in the form of questionnaires, and qualitative approach, by way of in-depth interviews were employed during the data collection. Students responded to the questionnaire while the teachers were interviewed. The questionnaire comprised four sections. Section A sought the biographic data of students while sections B, C, and D were structured to answer the first, second, and fourth research questions respectively. Apart from section A of the questionnaire, all the items were statements based on a 4-point Likert scale format. The structured interview guide was employed to interview the History teachers. The items were mainly open-ended, thus giving the respondents the opportunity to express themselves on issues covering all the research questions. This instrument was used for teachers because it enabled them to provide in-depth knowledge about various issues related to technology-aided instruction.The interviews also helped to crosscheck, verify and strengthen some of the data gathered from the students' questionnaire.

3.5 Data Collection Procedure

The researchers visited the selected schools and arranged for convenient days to administer the instrument. Before this, introductory letters from the department had been submitted to the Assistant Heads (Academic) of the schools to ask for permission to carry out the study. In order to explain the rationale for the exercise and encourage independent work, as well as ensure prompt and easy retrieval, the questionnaires were administered to the students by the researchers themselves. The respondents were allowed enough time to respond to the questionnaire, after which they were collected the same day. The return rate of the questionnaire was 100%. The History teachers were then interviewed separately and their responses recorded. Each interview with each teacher lasted for approximately 25 minutes. The interviews were conducted the same day the questionnaire was administered to students.

3.6 Data Analysis Procedure

The questionnaires were first numbered sequentially and the responses to the items were coded into numeric values from 1 – 4 for each item as follows; "Never" (1); "Occasionally" (2); "Often" (3) and "Very Often" (4).
"Strongly Disagree" (1); "Disagree" (2); "Agree" (3) and "Strongly Agree" (4). These numeric values were fed into Statistical Package for Social Sciences (SPSS) version 18.0 to perform a descriptive organisation of the data into frequencies and percentages. Data obtained from the interviews were first transcribed into written text and analysed thematically by categorising responses in relation to the research questions raised, supported by verbatim extracts from participants. Inferences from literature and other relevant studies were drawn to support the findings.

4. Results and Discussion

4.1 Background Data of Respondents

It was necessary to consider the personal characteristics of the respondents in the study, as these inform the behaviour and attitudes of individuals. The

background data of students basically covered the distribution of respondents' sex and age. Data obtained from the student respondents are presented in Tables 1 and 2.

4.1.1 Table 1: Gender of Students

Gender	Frequency	Percentage
Male	61	39.9
Female	92	60.1
Total	**153**	**100**

The data in Table 1 show that most 92 (60.1%) of the students were female while 61(39.9%) were male. This is an indication that more females are gaining interest in taking History as an elective subject. It also proves that in the future, more female History teachers are going to be produced.

4.1.2 Table 2: Age Distribution of Students

Age	Frequency	Percentage
10-15 years	7	4.6
16-20 years	144	94.1
21- 26 years	2	1.3
Total	**153**	**100**

Table 2 shows that majority 144 (94.1%) of the students fall between the ages of 16-20 years. This is followed by the age range of 10-15 years with 7 (4.6%) of students falling into that category. The results clearly indicate that a greater majority of the students are relatively young which means that their intellectual faculties are developed enough for the study of a subject like History whose nature is abstract.

4.1.3 Gender of Teachers

In all, there were six (6) History teachers in the selected schools. Out of the six, three were male while the other three were female. This gives the indication that both males and females are equally interested in teaching the subject and that the teaching of History is no longer the preserve of male teachers.

4.2 What types of technologies can be used to teach History?

The research question was aimed at finding out the various types of technology tools or devices that could be used to enhance the teaching of History. The technology tools selected for the study were informed by the literature review on the types of technology for teaching History. This was done to determine whether or not respondents agree to the technology established by literature as essential in the teaching of History. Teachers responded to questions from the interview guide while students' responses were solicited from the questionnaire. The responses of students are presented in Table 3.

4.2.1 Table 3: Students' Views on the Types of Technologies for Teaching History

Technology tool/application	Strongly Disagree F (%)	Disagree F (%)	Agree F (%)	Strongly Agree F (%)
Computers	36 (23.5)	30(19.6)	50 (32.7)	37 (24.2)
Presentation software	54 (35.3)	39(25.5)	35 (22.9)	25 (16.3)
Projectors	50 (32.7)	35(22.9)	43 (28.1)	25 (16.3)
Television/Video	47 (30.7)	40(26.1)	34 (22.2)	32 (20.9)
Internet	34 (22.2)	27(17.6)	45 (29.4)	47 (30.7)
Electronic Encyclopaedia/Atlas	35 (22.9)	28(18.3)	49 (32.0)	41 (26.8)
Audio/Audio-visual materials	41 (26.8)	27(17.6)	46 (30.1)	39 (25.5)

Observations from Table 3 indicates that majority 92 (60.2%) of students agreed that the internet can be used in teaching History; 90 (58.8%) agreed on electronic encyclopaedia or atlas; 87 (56.9%) of the students agreed on computers; while 85 (55.6%) agreed on the use of audio and audio-visual materials. Even though presentation software has been identified as a resource for teaching, majority 93 (60.8%) of respondents disagreed that it can be used to teach History; 85 (55.6%) disagreed on the use of projectors; while 87 (56.8%) disagreed to the use of television/video in the teaching of History. These figures show that in the view of students, the internet, atlas, computers and audio/audio-visual materials are the major types of technologies that can be used in teaching History. Again, the fact that students disagreed that presentation software, projectors and television/video can be used to teach History indicate that students are probably not aware of these technologies as having the potential of enhancing the teaching of History. This may be attributed to the seemingly low level of technological awareness that is highly characteristic of students at the lower levels of education in the country. Again, it is possible that students have not been exposed to such technologies at the beginning stages of education to be able to underscore their usefulness in History lessons.

From the interviews teachers indicated that there are different technologies available for teaching History. All six teachers identified computers as the most common technology for teaching History. Besides computers, mention was made of projectors, films, slides, and audio-visuals as some of the technologies for teaching. Highlighting the usefulness of audio-visuals, one teacher indicated that, "audio-visual materials whip up the interest of the students and they are able to understand lessons better than what is just in the History textbooks". Other teachers also acknowledged the importance of the internet as a major tool for accessing up-to-date information and also for correcting dates or years associated with events which are incorrectly produced in the textbooks. They also cited the atlas as an invaluable tool for the teaching of History, as some topics cannot be taught without making students aware of the geographical background in which such events occurred. In the view of the teachers therefore,

technologies such as computers, projectors, films, slides, audio-visuals, internet, and atlas enrich History lessons and facilitate teaching and learning.
These results point to the fact that both History students and teachers are aware of the types of technologies for teaching History, even though students responses were limited to a few of such technologies. This awareness confirms the position of Sofowora & Egbedokun (2010) that there are different kinds of technology resources that are useful for teaching Geography and History. The abstract and metaphysical nature of History demands that subject-teachers adopt contemporary approaches to make it relevant to students' lives and restore the interest of students in the subject. The need to bring the subject to life has led to the call to adopt a more technology-oriented approach to teaching the subject. Knowing the types of technologies to teach the subject therefore marks an important step in resuscitating the subject which is on the brink of collapse. As such, the views espoused by students and teachers relating to the applicability of various technology tools in History education lie in consonance with observations made by Amengor (2011), Fisher (2000), and Oppong (2009) that the internet, atlas, audio-visuals and computers are important tools that can make History come alive in the classroom and also reduce the abstract nature of the subject. Again, the fact that all six teachers identified computers as the most common technology for teaching History concurs with the views of Grabe & Grabe (cited in Fisher, 2000), who pointed out that computers offer the greatest potential for meaningful technology usage in History lessons. The findings suggest that both teachers and students understand the important roles the various technology tools can play in the teaching and learning of History. This understanding must therefore propel teachers to make a transit from the "chalk and talk" teacher-centered approaches to a more technology-driven, interactive, and student-centered methods of teaching History. If these technologies are to be meaningfully, utilised by teachers, a whole new dimension would be added to the teaching and learning of the History (Fisher, 2000).

4.3 To what extent do SHS History teachers use technology in teaching History?

This research question sought to find out from both teachers and students, how frequently teachers used technology in the teaching of History, and the various ways teachers employed technology in class. Also, it sought to inquire whether apart from using technology in the classroom, teachers employed technology for other educational purposes. The responses gathered from students are presented in Table 4.

4.3.1 Table 4: Students' Views on Teachers' Frequency of Technology Use

Technology tool/application	Never F (%)	Occasionally F (%)	Often F (%)	Very Often F (%)
Computers	109(71.2)	28 (18.3)	13 (8.5)	3 (2.0)
Presentation software	121(79.1)	21 (13.7)	5 (3.3)	6 (3.9)
Projectors	125(81.7)	14 (9.2)	7 (4.6)	7 (4.6)
Television/Video	112(73.2)	24 (15.7)	11 (7.2)	6 (3.9)
Internet	82 (53.6)	46 (30.1)	18 (11.8)	6 (3.9)
Electronic encyclopedia/ Atlas	86 (56.2)	49 (32.0)	11 (7.2)	7 (4.6)
Audio/Audio-visual materials	97 (63.4)	30 (19.6)	17 (11.1)	9 (5.9)

It could be gathered from Table 4 that most teachers do not frequently make use of the various types of technologies in the teaching of History. From the Table, most 125 (81.7%) of respondents were of the view that teachers never used projectors for teaching, with only 14 (9.2%) indicating occasional use. Again, 121 (79.1%) of respondents indicated that teachers never used presentation software. This was followed by 112 (73.2%) and 109 (71.2%) respondents who agreed that teachers never used television/video and computers respectively in teaching History. Moreover, very few 26 (17%) of the students indicated that teachers used audio/audio-visual materials often whiles 30 (19.6%) reported occasional use. Again, 46 (30.1%) and 49 (32.0%) indicated the occasional use of the internet and electronic encyclopedia/atlas respectively, with only 24 (15.7%) and 18 (11.8%) indicating frequent use. The figures point to the fact that in view of students, History teachers rarely make use of available technologies in the teaching of the subject. This is enough evidence to suggest that History teachers are likely to resort to the so-called bad ways of teaching History which include the lecture method, note taking, reading round the class, and silent reading often followed by irrelevant questions (Crookall, 1975).

Data gathered from the interview with the teachers revealed that although teachers acknowledged the importance of technology, they did not use them, or used them sparingly because of various difficulties. On the issue of how often they used the various types of technologies for teaching History, the teachers were divided. While some claimed to make frequent use of the internet and computer, and occasional use of slides and videos, most of them admitted they never made use of any such technology device or application in teaching. The view of one participant lends credence to this, "…technology? No… In this school I don't go beyond the traditional methods of teaching". This view reinforces the idea that most history teachers feel it is burdensome adopting an array of instructional aids and methods in teaching the subject. It is for this possible reason that some teachers continue to hang on tenaciously to dogmatic methods or approaches that allow little or no space for student engagement.

However, with the high stakes in education and the continuous growth of knowledge, History teachers are presented with a much more arduous challenge to rise up to the challenge by revamping their teaching strategies and add new dimensions to their mode of delivery. When asked about how they employed technologies in teaching, teachers who used technology occasionally indicated that they used it to make presentations, demonstrations, explanations and also used them to arouse students' interest in lessons. This is in consonance with the findings of Zhao (2007) that some teachers used a variety of technologies to facilitate presentation and make demonstrations in their teacher-centered classrooms. The fact that the past is distant from the present and cannot be rolled back like a film to see the exact past actuality makes History teachers rely on their own understanding from what is mostly documented to give a somewhat blur picture of the past since they may not be contemporaries of most of the events they teach. The application of technology therefore presents a more convenient means of presenting historical information in real-life contexts thereby enabling students establish linkage with the past, appreciate the 'how' and 'why' of past happenings, develop historical consciousness and imagination, quicken the interest of the learners and motivate them to learn. This is because events are taught through well informed demonstrations, useful explanations and top-quality presentations. Also, on whether they used technology for any other educational purpose apart from teaching, all teachers indicated that they used the internet and the computer to record students' grades and also to keep the records of students. The foregoing suggests that History teachers used computers more outside the classroom and far less in the classroom.

The findings related to this research question indicate that most History teachers do not make use of technologies in teaching and even those who use them do so occasionally. This implies that History teachers are likely to rely heavily on the History textbooks and other resources that may not stimulate the interest of students. This concurs with earlier studies by Adeyinka (1989), Oppong (2009), and Ruto & Ndaloh (2013) that History teachers used textbooks frequently and did not make use of other instructional and technologically oriented resources such as audio media, visual media and audio-visual media in History lessons. The findings also fall in line with the study by Boakye & Banini (2008) which concluded that teachers were not ready to use technology in their teaching practices. Again, the fact that very few teachers indicated the occasional use of technology means that the extent of use among them is very low. This confirms the study of Yidana (2007) which found that teachers were in the low level category of technology users. On the use of technology for other educational purposes, the findings of the study are consistent with studies conducted by Doppen (2002), and Haydn (2001). The results of these studies showed that History teachers used computers for curricular and instructional purposes such as researching information on Historical topics and the preparation of teaching materials, as well as for administrative tasks, such as performing assessment, recording students' grades, and posting them on the internet. The results however contradict the findings of Buabeng-Andoh (2012), Gulbahar & Guven (2008), and United States Department of Education (2003) which reported that

teachers very frequently used computers and other technology tools for a variety of instructional purposes. This could possibly be as a result of the advanced areas in which these studies were conducted. These findings suggest that even though teachers used minimally technology for other educational purposes, they did not make frequent use of technology in teaching History. It could thus be said that teachers of History, to a large extent, do not employ technology in their teaching activities.

4.5 What are the perceptions of SHS History teachers of the use of technology in the teaching of History?

In addressing the research question, teachers' views were sought during the interviews, on various issues regarding how they perceived technology in the teaching of History. It was gathered from the interviews that teachers generally have positive perceptions of the use of technology in History lessons. All teachers shared a similar view that technology can make a difference in the teaching of History. The teachers believed that technology makes History more concrete and not abstract, making it easily comprehensible and more lively. This is seen in a remark made by a participant, "…compared to when I was in Secondary School, there was nothing like technology. The teacher wrote long notes and we copied the whole day… but this time, with technology, students can listen, and at times see things that happened in the past and I think this makes the subject more interesting and students get the understanding better". Participants also indicated that, with videos, students can easily recall events and make reasonable critique on them, make contributions and ask questions because they understand the issues better. One could thus say that technology helps to revivify the subject and makes it appeal to the intellect and emotions of students as well as equip teachers with resources to convey content knowledge in ways that are meaningful to students. This also reinforces the view that audio-visual materials can effectively communicate Historical information and thus cements the position of Oppong (2009) that audio-visuals make events look real to students and reduces the abstract nature of History. Adding to this, some teachers also believed there are certain biases and inconsistencies that are corrected by the use of technology aids.

There were also shared views among the teachers on whether technology enabled teachers to meet the varying needs of students. Some of the teachers indicated that since most students do not like reading chapters over chapters, the use of pictures or videos will help students with less reading skills and ability to grasp the issues well. This draws attention to the idea that students differ in their approaches to learning. The fact that students have differing learning styles demand that teachers adopt instructional methods and technology-oriented aids that cater for all learning styles in their presentation if they are to reach every student. This creates an enabling atmosphere for students of all abilities and learning styles to feel at home, develop their potentials and make sense of what is taught. This view therefore corroborates the idea of Kassim et al, (2004) that technology-based learning activities create an atmosphere of great engagement and dedication on the part of students which motivates even weak students to get involved in classroom tasks. This finding is

also in consonance with previous findings of studies conducted by Amengor (2011), Buabeng-Andoh (2012), Gulbahar & Guven (2008), Haydn (2001), Kandasamy & Shah (2013), and Miima et al, (2013). These studies reported that teachers saw technology as useful in meeting the varying need of students, motivating students, promoting collaboration among students, enhancing students' interest, enhancing students' participation, and helping students understand concepts in more effective ways.

With respect to whether technology improved teachers' motivation to teach History, all the teachers admitted that the use of technology is a motivational tool for them. One teacher's response was that "History itself is dry, especially things that happened in the past when you were not there, but when you see them, it motivates you to teach". Another teacher remarked that "… it is not always that teacher has to read and pour content in class. There are a lot of things we teach which we have not seen before but sometimes with the help of technology, when you also see it yourself you become motivated and your interest is aroused". Most of the teachers also agreed that students' demonstration of knowledge and good understanding of the topic continually motivates them to use technology. Again, some of them revealed that they are motivated to teach History since technology helps them access some facts not found in the History textbooks. All six teachers also believed that technology made them teach effectively. These findings are consistent earlier findings made by Amengor (2011), Kandasamy & Shah (2013), and Rampersad (2011). It could thus be said that History teachers see technology as crucial in determining their inclination, dedication and commitment toward teaching the subject.

On whether technology should be used for other subjects and not History, teachers' responses were unanimous that technology should be used for all subjects, including History. Again, most of the teachers did not believe that technology use is time consuming and may cause delay in syllabus coverage. Some indicated that technology would rather facilitate the coverage of the syllabus and enhance quality teaching. However, one teacher believed that technology consumes time, and using too much of it might not help teachers to cover the syllabus. In all, teachers did not see the use of technology as burdensome and time consuming but admitted that technology is necessary for History lessons. The view that technology facilitates syllabus coverage stands in direct contrast with the results of studies by Miima et al, (2013), and Vrasidas et al, (2010) which reported that considering the length of the syllabus to be covered, technology use might consume time and cause delay in covering the entire syllabus. This lends credence to the fact that the SHS History syllabus is overloaded with topics which cannot be covered their entirety within the stipulated period if the topics are to be well taught. The results presented indicate that History teachers have positive perceptions of technology use in teaching even though this perception was not equally reflected in their use of the various technology tools. In sum, teachers perceived technology as that which makes History less abstract but more comprehensible and lively; enables teachers to meet the varying needs of students; and improves students' understanding, contribution, and questioning in class. Technology was also

found to increase History teachers' motivation to teach effectively and also facilitates syllabus coverage. These perceptions about technology must be made manifest in the teachers' actual use of the various technologies in teaching History so as to bring a new dimension to how the subject is taught.

4.6 What are the attitudes of SHS History students when technology is used in History lessons?

This section examines the attitudes of students towards History lessons when technology is used in class. To answer this question, students' view were sought from the data from the questionnaire while teachers responses were gathered from in-depth interviews The responses of students are shown in Table 5.

4.6.1 Table 5: Students' Attitudes when Technology is used in lessons

Statement	Strongly Disagree F (%)	Disagree F (%)	Agree F (%)	Strongly Agree F (%)
Technology use makes History lessons exciting.	13 (8.5)	10 (6.5)	59 (38.6)	71 (46.4)
Students participate meaningfully in class when technology is used.	6 (3.9)	12 (7.8)	70 (45.8)	65 (42.5)
Students become attentive in class and focus on the lesson.	9 (5.9)	21 (13.7)	62 (40.5)	61 (39.9)
Students think critically about historical events.	9 (5.9)	23 (15.0)	66 (43.1)	55 (35.9)
Students show greater involvement and engagement in lessons.	6 (3.9)	16 (10.5)	68 (44.4)	63 (41.2)
Students ask questions that bother their mind.	6 (3.9)	29 (19.0)	64 (41.8)	54 (35.3)
Students demonstrate	7 (4.6)	19 (12.4)	65 (42.5)	62 (40.5)

understanding				
Students learn History better through the use of videos or documentaries.	13 (8.5)	12 (7.8)	49 (32.0)	79 (51.6)
Students show interest in History lessons.	11 (7.2)	15 (9.8)	63 (41.2)	64 (41.8)
Students can learn from different perspectives.	8 (5.2)	17 (11.1)	69 (45.1)	59 (38.6)
History can be improved with the introduction of technology.	9 (5.9)	13 (8.5)	44 (28.8)	87 (56.9)
Students accept that teacher should use technology in class.	11 (7.2)	8 (5.2)	36 (23.5)	98 (64.1)

As shown in Table 5, majority of the students agreed on the various statements regarding their attitudes when technology is used in History lessons. From the Table, 128 (83.0%) students agreed that technology makes them show interest in History lessons and enables them to learn History better through videos or documentaries. This view of students that videos or documentaries improve students' learning confirms Turan's (2010) observation that students can learn History better when they watch a movie or documentary than they can by reading a textbook. This finding emphasises the use of audio-visual materials, as they are paramount in fostering students' positive attitude towards History lessons. Also, 127 (82.9%) student agreed that they demonstrate better understanding of History topics, while 118 (77.1%) indicated they are able to ask intelligent questions when technology is used. On the statement that technology makes lessons exciting, 130 (85%) agreed, while 135 (88.3%) students showed that they are able to participate meaningfully in class when technology is used. Moreover, 123 (80.4%) indicated that they become attentive and focused on the lesson; 131 (85.6%) indicated showing greater involvement in class while 121 (79%) agreed that they can think critically about historical events. Also, 131 (85.7%) of the respondents pointed out that History can be improved with the introduction of technology; 128 (83%) agreed that they can learn from different perspectives, while 134 (87.6%) showed their receptivity to technology by

accepting that technology be used in teaching History. The figures in Table 6 show that most students are in agreement with all the statements on their attitudes towards technology-aided History lessons, with only few students disagreeing with the statements. This portrays how much value students place on technology-infused teaching and learning activities, and their desire to be engaged significantly in History lessons. The learning process is enhanced when students are allowed to participate fully, actively and consciously in what transpires during the period of teaching. Technology-aided instruction therefore presents a more student-centered orientation to the teaching of History and culminates in shaping students' attitudes and understanding and also propels them towards student-owned learning. Learners are therefore able to situate events of History into appropriate contexts, compare and contrast events against others, and develop their intellectual faculties for deep and insightful critical thinking (Oppong, 2009), thus making the learning of History an intellectually stimulating activity.

From the interviews, most of the teachers revealed that there is an increase in class attendance and punctuality when technology is used in class. For instance, in answering a question on students' class attendance, one teacher responded, "…they even wish that we use technology every day in class. They even come and call you before the period begins or before you get to the class". Again, teachers believed that when technology is used, students portray an exciting and enthusiastic attitude toward History lessons. The responses also indicated that students' interests are aroused and that encourages students to ask questions, become attentive, and make useful contributions. Other responses showed that students demonstrate understanding of History lessons by scoring high marks on exercises given. This shows that technology boosts the interest of students to learn and consistently makes them show positive attitudes towards instructional periods. These findings therefore correspond with the results obtained by Doppen (2002), Rampersad (2011), and Turan (2010) which indicated that technology improved students' attentiveness, increased their academic achievement, excited them, captured students interest and also made them engaged and involved in lessons. Again, teachers endorsed students' receptivity to the use of technology in History lessons. Some earlier studies by Adeyinka (1989), Oppong (2009), and Ruto & Ndaloh (2013) have revealed that History teachers do not employ new technologically-oriented resources in teaching the subject. This restricts the teaching of History to the use of traditional methods and the textbook which do not appeal to students' interest. However, students' responses indicate that technology can be used to improve the teaching of History. This is possibly because of the advantages and promises that technology brings to the teaching of History. This finding, therefore, falls in line with the observation made by Lavin et al (2011) who examined the impact of classroom technology on student behaviour and suggested that courses that did not use technology could be improved by the introduction of new technologies.

In all, the results revealed that technology makes students excited about History lessons; makes them show interest in History; enables them to be attentive in class, ask questions, and understand the lesson better. Again, the findings show

that students are always eager to attend History classes. They also display attentiveness in class; demonstrate understanding of the content taught them; ask questions and also make useful contributions in class when technology is used. Also, it was found that History can be improved with technology and that students can learn History better through audio-visual media like videos, films and documentaries. Again, students in the study were found to be generally receptive to technology use in History lessons. It thus follows that students generally demonstrate positive attitudes towards History lessons when various technologies are used during the instructional period.

4.7 What challenges do SHS History teachers face in using technology in teaching History?

The effort and commitment towards integrating technology into instruction are sometimes challenged by obstacles which can in the long run cripple teachers' motivation to adopt technologically-informed pedagogical practices in teaching History. In order ascertain the challenges teachers face in using technology for instruction, teachers' views were sought during the interview sessions. Commonalities and distinctions of the major themes that emerged from the interviews are presented below.

The responses of teachers indicated that they considered the unavailability of technology resources as a great challenge to their use of technology in teaching. Even though a few teachers indicated they have access to computers and internet in their schools, most of them admitted that they do not have access to such facilities. Similarly, teachers indicated that the History departments in their schools do not own projectors and computers and so they have to borrow from other departments. Besides, it was revealed that most of the electrical sockets in the classrooms were faulty and further inhibited their use of technology. These responses reveal the structural inadequacies that characterise most second-cycle institutions in the country. The absence of such basic facilities in most schools point to the fact that there is more room for improvement in terms of the level of development and advancement in such schools. It also connotes that teachers' readiness for technology use will ultimately suffer since such technologies are unavailable. In effect, the present-day call for technology-infused instruction in History instruction may not materialise. This finding therefore confirms the results obtained by Maholwana-Sotashe (2007) and Nuuyoma (2012) that unavailability of infrastructure, lack of hardware and software, lack of internet access and other of ICT resources are factors for low technology patronage among teachers.

Going further, teachers claimed that they barely have enough time to use technology in class. Some were of the view that they do not have enough time during the normal lesson period except at weekends or on holidays. Possibly, the reason for the lack of time may be the inadequate number of periods allocated for History the on the school time-table as was found by Oppong, (2009). Time constraint hence features prominently among the factors known to militate against the effective teaching of History. History teachers' complaint about insufficient time is thus consistent with the results of previous studies by

Amengor (2011), Haydn (2001), Kandasamy & Shah (2013), and Miima et al, (2013). These studies agree on teachers' lack of sufficient time to prepare instructional materials using technology as well as time to plan how to integrate them into History lessons as the most influential, and the most common barrier to technology use. On their efficacy and competence in using technological tools or devices, teachers expressed divergent views. Most of them claimed they have the necessary skills and are competent to use technology in their lessons. One teacher however indicated that she lacks the needed skills in using the various technologies because she does not have any training on them. According to her, this often led to waste of time in undertaking simple tasks. One other challenge that teachers identified was the inability of the schools' administration to provide the technology tools or applications for use in teaching the subject. One participant, for example, indicated, "the heads of the institution are not ready to procure the facilities because they do not understand why you need such technology before you can teach your subject when you can take your marker and just teach". To most of the teachers, this lack of administrative support does not give them the motivation to use technology in teaching the subject. The deficient support of administrators and other managerial staff towards History teachers' use of technology reflect their underestimation of the usefulness of technological innovation in the teaching of the subject. This corresponds with Nuuyoma's (2012) finding that teachers' lack of motivation from school management made them reluctant to use technology for instructional purposes.

This section of the research sought to find out the challenges that History teachers face in using technology to teach. The findings revealed that teachers face a major challenge with the unavailability of technology resources. Another challenge was the lack of time to use various technological applications in class as well as the lack of motivation from school administration in terms of the provision of the needed technologies for teaching. One could thus say that these challenges, to a great extent, hinder History teachers' use of technology in the teaching of History.

5. Conclusions and Recommendations

The teaching of History is not limited to using the textbook and other approaches that are teacher-centered. Educationists over the years have advocated the use of methods that make students active in the teaching-learning process. The availability of different varieties of modern-day technologies hence increases the pedagogical options of teachers and utilising them carefully can contribute significantly to making the teaching and learning of History more thrilling. Though History teachers have been found to possess positive perceptions about technology, these positive perceptions are not translated into practical use as they tend to use technology sparingly during the instructional period. This means that teachers are likely to resort to the traditional methods of teaching the subject, without any technological innovation. Moreover, History teachers' low patronage of technology in lessons can be attributed to the challenges they face. Even though the unavailability of technological tools or devices appear to be the greatest challenge teachers face, other barriers such as insufficient time and lack of administrative support equally ruin teachers' efforts

towards technology integration. Such challenges gradually erode teachers' intrinsic desire to employ technologies in their lessons. Students of History exhibit positive attitudes when technology is used within History lessons. This is an indication of their desire to be involved in the learning process through methods that appeal to their interests, emotions and intellect. The integration of technology into History education can therefore present the subject in a manner that allows students to appreciate the relevance of the past, relate them meaningfully to their lives, and inculcate positive attitudes for a better living.

For successful technology integration in History education, teachers need be sensitised on the different types of technologies that can be used to enhance the teaching of History. Through frequent in-service training sessions, History teachers can be exposed to a variety of technologies and how important they are to the teaching of the subject. Knowledge of this sort will spark awareness among teachers that the integration of technology is not restricted to entering students' grades and keeping records but spreads to using technology in different ways to facilitate instruction and gauge students' progress. Teachers of History therefore need to be innovative and creative by knowing how best to diversify the use of technology both for instructional and other educational purposes. Also, heads of institutions should introduce motivational packages to encourage teachers to inculcate the habit of making the teaching of History concrete by frequently using technologically-informed pedagogies to facilitate teaching and aid learning so as to erode the negative perceptions students hold about the subject. Again, for the purpose of technology integration to be achieved, the education ministry and other stakeholders in education must provide the various technology resources needed by schools. This is because it is only when such resources are available that teachers can use them to teach. Moreover, to enable teachers get enough class time for technology integration, there is the need to ensure that History is given enough periods on the school time-table. Creating more periods for History is therefore one sure way of battling the challenge teachers have with time.

Areas for Further Research

To further extend the literature on the use of technology in the teaching of History, the following recommendations for further studies are provided:

1. A more comprehensive study on the same topic should be conducted on a larger sample size across different regions so that the findings can be generalised for the whole country. Teachers in higher levels of education can be included in the study so as to conduct a comparative analysis of their responses with that of Senior High School teachers.
2. Further research should look at the relationship between technology-aided instruction and students' performance in History. This would help establish whether or not the use of technology in teaching has a bearing the effectiveness of students' learning.

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References

Adebi-Caesar, T. E. (2012). *Assessment of I.C.T situation in senior high schools: A case study in lower Manya Krobo district*. Kwame Nkrumah University of Science and Technology: Unpublished Master's Thesis.

Adeyanju, R.J. (1999). *Basic concepts in educational technology. A handbook for pre-service and in-service teachers in West African Countries*. Winneba-Ghana.

Adeyinka, A. A. (1989). Current problems of history teaching in some Nigerian senior secondary schools. *Ilorin Journal of Education, 9*(6), 55-63.

Afari-Kumah ,E. & Tanye, H.A. (2009). Tertiary students' view on information and communications technology usage in Ghana. *Journal of Information Technology Impact. 9*(2), 81-90.

Amedzo, E. K. (2007). *The integration of information and communications technology into rural schools of South Africa: A case study of schools in Malamulele.* Stellenbosch University: Unpublished M.Phil. Thesis.

Amengor, J. (2011). *History teachers' perception of ICT in promoting teaching and learning.* University of Cape Coast: Unpublished Dissertation.

Amenyedzi, F. W. K., Lartey, M. N. & Dzomeku, B. D. (2011). The use of computers and internet as supplementary source of educational material: A case study of the senior high schools in the Tema metropolis in Ghana. *Contemporary Educational Technology, 2*(2), 151-162.

Anderson, W. S. (2008). *The use of technology in education: Benefits and challenges*. Boise State University: Unpublished article.

Association for Educational Communications and Technology. (2004). *The meanings of educational technology*. Definition and Terminology Committee, Bloomington. Available at http://ocw.metu.edu.tr/file.php/118/molenda_definition.pdf. Retrieved on January 29, 2014.

Ayas, C. (2006). An examination of the relationship between the integration of technology into social studies and constructivist pedagogies. *The Turkish Online Journal of Educational Technology, 5*(1).

Balogun, T.A. & Abimbade, A. (2002): *Introduction to instructional technology.* Centre for External Studies, University of Ibadan: Unpublished Master's Thesis.

Bijker, W. E., Hughes, T. P. & Pinch, T. (1987). *The social construction of technological systems: New directions in the sociology and history of technology.* Cambridge: MIT Press.

Bingimlas, K. A. (2009). Barriers to the successful integration of ICT in teaching and learning environments: A review of the literature. *Eurasia Journal of Mathematics, Science and Technology Education. 5*(3), 235-245.

Boakye, K. B., & Banini, D.A. (2008). Teacher ICT Readiness in Ghana. In: Toure, K., Tchombe, T.M.S. & Karsenti, T (Eds.), *ICT and Changing Mindsets in Education*. Bamenda, Cameroon.

Buabeng-Andoh, C. (2012). An exploration of teachers' skills, perceptions and practices of ICT in teaching and learning in the Ghanaian second-cycle schools. *Journal of Contemporary Educational Technology, 3*(1), 36-49.

Creswell, J. W. (2002). *Educational research: Planning, conduction and evaluation quantitative and qualitative research.* New Jersey: Pearson Education Inc.

Crookall, R.E. (1975). *Handbook for history teachers in Africa*. London: Evans

Doppen, F. H. (2002). *Beginning social studies teachers' use of technology in the teaching of history.* University of Florida: Unpublished Ph.D Dissertation.

Dunmire, R. E. (2010). *The use of instructional technology in the classroom: selection and effectiveness.* United States Military Academy, New York: Unpublished Master's Thesis.

Enayati, T., Modanloo, Y., & Kazemi, F. S. M. (2012).Teachers' attitudes towards the use of technology in education. *Journal of Basic and Applied Scientific Research, 2*(11).

Field, A. (2003). *Encouraging history teachers to use ICT- History teachers' discussion forum.* Available at http://www.schoolhistory.co.uk/forum/index.php?sh owtopic=1254 . Retrieved on January 23, 2014.

Fisher, D. (2000). History Teaching with ICT: The 21st century's 'gift of Prometheus'? *ACE Research Papers,* Issue 7, 46-58.

Fraenkel, J. R & Wallen, N. E. (2000). *How to design and evaluate research in education* (4th ed.). Boston: McGraw-Hill.

Gay, L. R. (1987). *Educational research: Competencies for analysis and application*. (3rd ed.). Columbus, Ohio: Merril Publications.

Gulbahar, Y., & Guven, I. (2008). A survey on ICT usage and the perceptions of social studies teachers in Turkey. *Educational Technology & Society*, *11*(3), 37-51.

Haydn, T. (2001). Subject discipline dimensions of ICT and learning: History; A case study. *International Journal of Historical Learning, Teaching and Research, 2*(1).

Hooper, S. & Rieber, L. P. (1995). Teaching with technology. In: Ornstein, A. C. (Ed.), *Teaching: Theory into practice*, (154-170). Needham Heights, MA: Allyn and Bacon Inc.

Huang, H. M., & Liaw, S. S. (2005). Exploring users' attitudes and intentions toward the web as a survey tool. *Computers in Human Behaviour, 21*(5), 729–743.

Kandasamy, M. & Shah, P. B. M. (2013). *Knowledge, attitude and use of ICT among ESL teachers*. Proceedings of the Global Summit on Education. Available at http://worldconferences.net/proceedings/gse2013/papers_gse2013/247 %20Moganash wari%20Kandasamy-Parilah%20Bt%20Hj.%20Mohd%20Shah.pdf914-930. Retrieved on February 10, 2014.

Karve, V. (2009). *The meaning of technology*. Available at http://karvediat.blogspot.com/2009/07/meaning-of-technology.html. Retrieved on January 25, 2014.

Kassim, H., Hashim, H. & Radzuan, N. R. M. (2004). *Towards the effectiveness of utilizing ICT in enhancing language learning process: A pilot study*. Available at http://s3.amazonaws.com/academia.edu.documents/3248170/Effective ness_of_Using _ICT_in_Enhancing_Language_Learning.pdf? Retrieved on January 21, 2014.

Krejcie, R. V. & Morgan, D. W. (1970). Determining sample size for research activities. *Educational and Psychological Measurement*, 30, 607-610.

Lavin, A. M., Korte, L., & Davies, T. L. (2011). The impact of classroom technology on student behaviour. *Journal of Technology Research.* Available at https://aabri.com/manuscripts/10472.pdf. Retrieved on January 28, 2014.

Maholwana-Sotashe, N. L. (2007). *Challenges faced by secondary school teachers in integrating ICT into the curriculum: A multiple case study in the Grahamstown Circuit*. Rhodes University: Unpublished Master's Thesis.

Miima, F.,Ondigi, S., & Mavisi, R. (2013). Teachers' perception about integration of ICT in teaching and learning of Kiswahili language in secondary schools. *International Journal of Arts and Commerce, 2*(3), 27-32.

Nuuyoma, E. (2012). *Challenges faced by English Teachers in integrating information and Communication technology in the teaching of reading and writing in two rural primary schools in the Omusati Region and four urban primary schools in the Khomas Region of Namibia*. University of Namibia: Unpublished Master's Thesis.

Oppong, C. A. (2009). *An evaluation of the teaching and learning of history in senior high schools in the Central Region of Ghana*. University of Cape Coast, Ghana: Unpublished M. Phil. Thesis.

Ozdemir, U. (2012). High school students' attitudes towards geography courses. *World Applied Sciences Journal, 17* (3), 340-346.

Raman, A. & Mohamed, A. H. (2013). Issues of ICT usage among Malaysian secondary school English teachers. *Journal of English Language Teaching, 6*(*9),* 74-82.

Rampersad, C. (2011). *Teachers' perceptions of the contribution of information and communication technology to the teaching of modern studies: Using an integrated system, in an urban secondary school*. University of the West Indies: Unpublished Master's Thesis.

Rooney, D. (1996). *Playing second fiddle: A history of the relationship between technology and organisation in the Australian music economy 1901 – 1990*. Griffith University: Unpublished Ph.D Dissertation.

Ruto, Z. J. & Ndaloh, A. M. (2013). Overcoming the challenges of using instructional methods and materials encountered by teachers of history and government in Wareng district, Kenya. *Journal of Emerging Trends in Educational Research and Policy Studies, 4*(2), 265-273.

Shane, A. H. (2008). *The technological teacher: How educational technology is changing the role of teachers in the high school classroom*. Georgetown University: Unpublished Master's Thesis.

Sofowora, O. A. & Egbedokun, A. (2010). An empirical survey of technology application in teaching geography in Nigerian secondary schools. *Ethiopian Journal of Environmental Studies and Management,* 3(1), 46-54.

Turan, I. (2010). Student attitudes towards technology enhanced history education: Comparison between Turkish and American students. *Journal of Social Studies Education Research,* 1(1), 152-167.

United States Department of Education. (2003) *Federal funding for educational technology and how it is used in the classroom: A summary of findings from the integrated studies of educational technology*. Washington, D.C. Available at https://www2.ed.gov/rschstat/eval/tech/iset/summary2003.pdf. Retrieved on February 10, 2014.

Volk, K. Yip, W. M & Lo, T. K (2003). Hong Kong pupils' attitude toward the impact of design and technology programms. *Journal of technology education, 15*(1), 1-43.

Vrasidas, C. & McIsaac, M. (2001). Integrating technology in teaching and teacher education: Implications for policy and curriculum reform. *Educational Media International, 38*(2/3), 127-132.

Vrasidas, C., Pattis, I.,Panaou, P., Antonaki, M., Aravi, C., Avraamidou, L. & Theodoridou, K. (2010). *Teacher use of ICT: Challenges and opportunities*. Proceedings of the 7th International Conference on Networked Learning. Available at http://www.lancaster.ac.uk/fss/organisations/netlc/past/nlc2010/abstracts/PDFs/Vrasidas.pdf. Retrieved on March 15, 2014.

Yidana, I. (2007). *Faculty perceptions of technology integration in the teacher education curriculum: A survey of two Ghanaian universities*. Ohio University: Unpublished Ph.D Dissertation.

Zhao, Y. (2007). Social studies teachers' perspectives of technology integration. *Journal of technology and teacher education, 15* (3), 311-333.

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A Study of Senior Students' Critical Reading Competence via Analyzing their Reading Reports

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Abstract. As a necessary step of thesis writing, students are required to read the related literature concerning their chosen topics for writing research papers. In order to understand how the students have reviewed the literature and whether they have understood the conventions of reading and citing literature in their thesis writing, we assigned students to write a reading report of 1500 words. Among the 90 reading reports she has collected, the author has randomly selected 35 copies for analysis. There are 9 pieces on the topic of literary studies and 15 pieces for language teaching, 4 pieces on translation and 7 pieces on culture. In the 35 pieces of reading reports, it was found that only eleven pieces have cited from previous researches and most of the citations appear in reading reports on teaching methodology and translation. It is a pity to notice that there were no indications of citation in reading reports of literary works where many critics have done researches. Although some reports contain some topics, like the use of imagery in *For Whom the Bell Tolls*, Gothic element in *Wuthering Heights,* humanitarianism in *A Tale of Two Cities*, most students focus on summarizing the main plots of literary works. As for the types of information source, out of the total of 233, only 68 belong to the secondary source, namely the journal articles or collected essays. Thus we may conclude that students' critical reading competence is far from satisfaction and they still need to be guided as to how to read literature and how to evaluate the usefulness of the information they have found.

Keywords: thesis writing, reading reports, critical reading competence, critical thinking competence

1. Introduction

In the 21st century, the literate are no longer defined as being able to read and write, rather they are defined as possessing the critical thinking competence and the percentage of people having such competence in the population is regarded as an important criterion of the national comprehensive power. Paul (1992) even regarded critical thinking as "the aim of education" rather than "an aim of education." Ten Dam and Volman (2004) have studied the instructional format for critical thinking from the perspective of "critical democratic citizenship education." As early as 1990s, Luke and Freebody have advanced the Four

Resources Model of cultural education. According to the model, a literate citizen should possess four competences, namely coding competence, semantic competence, pragmatic competence and critical competence. Accordingly, readers will play four different roles in the course of reading, which are code-breaker, meaning-maker, text-user and text-critic. In the Unite States, critical thinking is seen as the decisive factor of American higher education, the demand of participating in democratic society and the core of cultural education. It is also the goal of reconstructing tertiary curricula and developing learner-centered teaching. Harward University encourages students to "respect ideas and free expression, to discover and think critically"(Harvard College Mission Statement, at http//:www. Harvard edu/siteguide/faqs/faq110html). In Yale University, students are required to provide competence in the "language of thought" because such competence gives the learners the tools to "think critically and analytically and to enlarge their imagination" (Yale Transfer Handbook, 2006-07). Brian Roper, president of North London University points out that higher education should cultivate students' abstract thinking ability, logical thinking ability, effective inferrencing ability and evidence-evaluating ability (Wen Qiufang et al, 2008: 38). However, in China, the English language teaching for English majors have just been engaged in imparting language knowledge and skills and thus neglected the cultivation of critical thinking competence. Huang Yuanshen (1998, 2010) revealed the "absence of critique" in foreign language learners and stressed the urgency and necessity of foreign language teaching reform. In 2000, the revision of "English Teaching Syllabus for English Majors at Universities" has taken "cultivation of learners' thinking competence and innovative competence" as one of the principles of foreign language teaching. Therefore, it is of great significance to effectively develop students' critical thinking competence in the course of language teaching and learning. Under such circumstances, the author decides to carry out a study to evaluate English seniors' critical thinking competence through the reading reports they are asked to write.

2. Literature Review

Many scholars have defined critical thinking from the perspectives of philosophy, psychology and pedagogy. Among them, the most well-known definition of critical thinking originates from Ennis (1991: 1-2), who defines critical thinking as "reasonable reflective thinking that is focused on deciding what to believe or do". In his definition, he distinguishes between skills and attitudes, the so-called disposition, which means being prepared to determine and maintain focus on the conclusion or question, willing to take the whole situation into account, prepared to seek and offer reasons, amenable to being well informed, willing to look for alternatives, and withholding judgment when evidence and reasons are insufficient. Dewey (1909: 9) has defined critical thinking as "an individual's active, enduring and delicate thinking over any beliefs or assumptions and the evidences and conclusions based on the beliefs and assumptions". He has further classified critical thinking into "critical analysis", "critical consciousness" and "critical reflection". Paul et al（1990: 17） have integrated critical thinking competence with strategies and proposed a list of 35 strategies in three categories. In his classification, macro-competence is

equated with meta-cognitive strategies while micro-competence is equated with cognitive strategies. Besides, a third group of strategies are defined as affective strategies. Similarly, based on the three relevant models, Wen Qiufang (2008, 2009) has proposed a conceptual framework for assessing Chinese postgraduate students' critical thinking skills. The framework consists of two levels. On the higher level are the meta-critical thinking skills and on the lower level are the critical thinking skills, with the former governing the latter. The critical thinking skills comprise two components: cognitive and affective. The cognitive component includes the cognitive skills and the standards which the cognitive skills are supposed to meet, and the affective component possesses some typical emotional attributes. The cognitive skills include analysis, inference and evaluation, while the standards are clarity, preciseness, relevance, logic, depth and flexibility. She has conducted a course called Literature Reading and Evaluation to postgraduates and doctoral students according to the model suggested above. Wu Zhihong（2010）has put forward four inquiry models to cultivate students' critical thinking skills, which are Socratic Method, reflexive thinking, meta-cognition and higher cognition. Han Shaojie and Wang Xiaoying (2009) have divided critical thinking into critical thinking skills and critical thinking quality. In their framework of critical thinking development, they have integrated the three stages of reading teaching with critical thinking process, which includes reflexive questioning, reflexive evaluation and evaluating questioning.

3. Data Collection

One of the major tasks for English major senior students is to write their graduate thesis. As a necessary step of thesis writing, students are required to read the related literature concerning their chosen topics for writing research papers. In preparing thesis proposal, they are asked to list five to seven sources to show that their thesis proposals are based on these sources. In order to understand how the students have reviewed the literature and whether they have understood the conventions of reading and citing literature in their thesis writing, we assigned students to write a reading report of 1500 words. The specific criteria to judge students' performance of literature reading and evaluation are whether they have selected sources related to their chosen topics and whether they are able to summarize the information by attending to the main issues covered in the material. What's more, students should be able to distinguish the unique contribution of previous researches to the related fields and to evaluate the merits and limitations of the conclusions drawn by previous researchers. In other words, our aim is to check students' critical thinking competence.

4. Results analysis

Among the 90 reading reports she has collected, the author has randomly selected 35 copies for analysis. There are 9 pieces on the topic of literary studies and 15 pieces for language teaching, 4 pieces on translation and 7 pieces on culture. Generally speaking, students have not demonstrated their ability to summarize the reading materials. On one hand, they were unable to locate the

main ideas from the academic books or articles. As a consequence, they just quoted some sentences or even paragraphs. On the other hand, they just copied from the reading materials instead of paraphrasing the main points in their own words. As for the literary studies, although some reports contain some topics, like the use of imagery in *For Whom the Bell Tolls*, Gothic element in *Wuthering Heights,* humanitarianism in *A Tale of Two Cities*, most students illustrated the topic by summarizing the main plots of literary works. They did not back up their understanding of the topics by referring to the latest researches on the literary works. As for the reading reports of other topics, much of the space is occupied by the theories underlying the teaching methods, including the key concepts, the definition, the activities and strategies, problems and solution together with the analysis of some examples. Even though they have listed several entries of reference materials in the end of the reading report, it seems that they have not completely read the books or journal articles, nor have they digested the information and known where to cite the information. In the 35 pieces of reading reports, only eleven pieces have cited from previous researches and most of the citations appear in reading reports on teaching methodology and translation. We find no indication of citation in reading reports of literary works where many critics have done researches. Thus we may see that students have not acquired the competence to summarize and synthesize the information and evaluate the relevance of the information critically, which are the core of critical thinking. The citations often appear in the form of several sentences or sometimes a long paragraph, which shows that students are unable to select the most relevant information from the sources.

As for the types of information source, out of the total of 233, only 68 belong to the secondary source, namely the journal articles or collected essays. The number of sources varies from 2 to 13 with the average being 6.66 while the requirement of the number of source is 5 to 7. There are five reading reports containing fewer than five sources (accounting for 14%) and 12 containing more than seven sources (accounting for 34%).

Table 1: Types of information in students' reading reports

Types	primary source	secondary source	Total
No.	165	68	233

Table 2: Distribution of sources in students' reading reports

	below 5	percentage	above 7	percentage	average
No.	5	14%	12	34%	6.66

5. Discussion

Reading reports is defined as a "critical evaluation" of what one reads. It is not only a concluding summary, but also a critical evaluation of the reading work. It contains a concise summary of the reading piece, providing an overview of what it actually concluded and a brief critique, giving an evaluation of the piece by expressing their opinions, ideas or reactions to the information the readers have acquired in the reading. To do so, readers must first of all read critically rather than accepting what is presented to them passively. According to Pascarella and Terenzini (Cited in ten Dam and Volman. 2004: 362), critical thinking involves an individual's ability to identify central issues and assumptions in an argument, recognize important relationships, make correct inferences from data, draw conclusion from information or data provided, interpret whether conclusions are warranted on the basis of the data given, and evaluate evidence or authority. In other words, to be critical, students must be sceptical. They should approach literature with scepticism and suspicion. In the process, they should ask questions and analyze information. They should consciously apply strategies to uncover meaning or verify their understanding.

What's more, they should not take an egotistical view of the world. Instead, they should be open to new ideas and perspectives and be willing to challenge their beliefs and investigate competing evidence. However, from the reading reports handed in by the seniors, we have hardly noticed students' demonstration of critical thinking even though they have been taught the procedures and principles of writing reading report. The reason why they did not criticize while summarizing the literature is due to the insufficient practice of critical thinking skills in the long run of English learning. Liu Donghong (2005) has attributed the absence of critical thinking to the rote memory teaching model of most language teaching classes in which the teacher dominates the class in the form of lectures while the students seldom ask questions. As a result, they are likely to develop fixed thinking patterns. She believes that the root of the teaching model lies in the rigid cultural atmosphere, blind worship of authority and the psychology of conforming to the public. In the course of teaching and learning, both students and teachers attach great importance to the unity of answers while ignoring diversity. In the learning of English reading, listening and American or British literature courses, for most of the time, they just passively receive what is offered by the teachers who conduct the courses mostly in the form of lectures.

In the classroom, there is no genuine exchange of ideas and negotiation of meaning. What's more, most of the exercises in the reading courses are examining students' literal comprehension in the form of multiple choices or true or false statement or questions. There is hardly any chance for students to express their own understanding of passages or their own opinions concerning some issues. This can be said to be the washback effects of some nationwide examinations like CET 4 and CET 6 and TEM 4 and TEM 8 which are comprised mainly of multiple choices for the sake of objectivity and easy measurement. The lack of subjective questions and essay writing leads to students' incompetence in critical thinking as they seldom need to think analytically and critically. Hence, when it comes for students to write the research papers in the last year of their

college life, most students will be confused about the selection of reading materials and are unable to summarize the information and come up with adequate criticism of relevant information.

6. Suggestions

To solve the problem of students' lack of critical thinking competence, it is crucial to change the teaching format of the courses of English majors, especially the reading and literature courses. Instead of having students discuss ideas found in their texts, teachers should have students brainstorm their own ideas and argue among themselves about problems and the solution to the problems. They should ask students for their point of view on issues, concepts and ideas. Whenever possible, they should give students tasks that require them to develop their own categories and modes of classification instead of being provided with them in advance (Paul, 1990). Dennick and Exley (1998, cited in ten Dam and Volman, 2004: 366) discusses four methods of small group teaching that enhance critical thinking: focused discussion, student-led seminar, problem-based learning and role play. Ten Dam and Volman, (2004: 375) suggest to adopt a social constructivist approach to learning how to think critically which emphasizes the importance of participation and reflection. Han Shaojie and Wang Xiaoying (2009: 68) have integrated critical thinking process with the three stages of teaching activities, namely previewing, teaching and consolidation. Through different teaching activities, students may practice reflecting and questioning in the preview stage, practice reflecting and evaluating in the teaching stage and practice evaluating and questioning in the consolidation stage, thus enhancing their critical thinking. In a word, only when students are involved in the process of learning and associate the learning material with some real-life problems can we foster their critical thinking.

7. Conclusion

The enhancement of critical thinking is not gained overnight. It requires the language teachers to change their teaching concept and realize the importance of critical thinking so that they may change their traditional teaching methods and then foster the critical thinking in their students. Besides, the examination system also needs to change to incorporate more items that test students' critical thinking, like analysis, synthesis and evaluation.

References

American Philosophical Association. (1990). Critical Thinking: A statement of expert consensus for purposes of educational assessment and instruction. The Delphi Report: Research Findings and Recommendations Prepared for the Committee on Pre-college Philosophy (ERIC Document Reproduction Service No. ED 315-423). Milbrae, CA: California Academic Press.

Benesch, S. (1993). Critical thinking: A learning process for democracy. TESOL Quarterly. 27 (3): 545-547.

Dewey, John. (1909). Moral Principles in Education. Boston: Houghton Mifflin Company.

Ennis, Robert, H. (1997). Incorporating critical thinking in the curriculum. Inquiry 16 (3).

Freebody, P., & Luke, A. (1990). Literacies programs: Debates and demands in cultural context. *Prospect.* Australian Journal of TESOL, 5(3).

Geert ten Dam, Monique Volman. （2004）. Critical thinking as a citizenship competence: Teaching strategies. Learning and Instruction. 14, 359-379.

Han, S. J. and Wang, X. Y. (2009). Intensive reading teaching and the cultivation of students' critical thinking competence. Foreign Language Teaching. 30/6：67-70.

Harvard College Mission Statement, at http//:www.harvard edu/siteguide/faqs/faq110html.

Huang Y. S. (1998). Absence of critical thinking. Foreign Languages and Their Teaching. 1：1- 9.

Huang, Y. S. (2010). English curricula should be deeply reformed—On absence of critical thinking. Foreign Language World. 1：11-16 .

Li, R. F. (2002). Foreign language teaching and cultivation of students' creativity and critical thinking. Foreign Language Teaching. 5：61-65.

Liu, D. H. (2005). A study of college students' critical thinking competence through their writings. Foreign Language Teaching. 2：46-51.

McCarthy, M. and Carter, R. (2004). Language as Discourse: Perspective for Language Teaching. Beijing: Beijing University Press.

Paul, R., Binker, A., Jensen, K., & Kreklan, H. (1990). Critical Thinking Handbook: A Guide for Remodelling Lesson Plans in Language Arts, Social Studies and Science. Rohnert Park, CA: Foundation for Critical Thinking.

Wen, Q. F. (2008). On cultivating English major postgraduates' high-level critical thinking competence. Diploma and Postgraduate Education. 10：29-34.

Wen, Q. F., Wang, J. Q., Zhao, C. R., Liu, Y. P. and Wang, H. Z. (2009). A theoretical framework of constructing rubric to measure foreign language learners' critical thinking competence Foreign Language World. 1: 37-45.

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