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Teaching and Learning with Technology: Is Technology a Powerful Tool to Engage Non-Major Students in Learning Economics?

Hairong Mu, Harper Adams University, United Kingdom

Abstract

In the 21st century, teaching practitioners in Higher Education are facing big challenges. Today’s students represent the first generations to grow up with various new technologies. Consequently, the traditional lectures are not an effective instruction in engaging students in the classroom as today’s students think and process information fundamentally differently from their predecessors as a result of the sheer volume of their interaction with technology.

When teaching economics to non-major students, we have been confronted with a number of additional challenges, such as students’ lack of interest in the subject, insufficient level of participation and engagement and so on. Motivated by the current trend of adopting technology in teaching and learning, we explored and adopted various technological tools to facilitate the interactive education in the classroom as well as to stimulate the interest and engage students out of the classroom. In order to examine the effectiveness of using technology in teaching and learning, a student survey was conducted for three economics modules that adopted these technologies. Meanwhile, students’ attendance was recorded and their performance in exams were compared.

The study revealed a positive attitude and perceptions from students toward adoption of technology, which made them more engaged in learning and helped them improve their performance in the exams. As the technology-supported pedagogy is still a relatively new topic, our study calls for further discussion and research on future directions of using technology in pedagogical design and practices in Higher Education.
Transformative Learning through the Power of Dance: Studies in Evoking the Empathetic Response

Doris Hudson de Trujillo, Utah Valley University, United States

Abstract

As dance artists and educators we believe that dance has the power to transform an individual student, teacher, classroom, community, and ultimately a society. We know of this power personally and intuitively as we teach, perform, and observe dance. This knowledge is reinforced in the dance community through personal and group accounts of transformative experiences. We have been active in advocating dance and its benefits in our educational institutions with this premise. But does dance truly have the potential to change us? Does it have the potential to transform individual lives, classrooms, and society as a whole? Does dance have the potential to propel us to action? Does it provide a vehicle for learning deeply about oneself, finding one’s voice, understanding others, and constructing meaning in this world.

This paper will examine dance and its potential to be a transformative vehicle in our educational institutions. Supported by current brain research and learning theories, it will focus on the aspect of its ability to evoke and teach empathy and ultimately transform participants and audiences. The results of two extremely different but potentially significant action research projects will be shared. They could alter our perceptions for the need of dance in our educational systems.

Keywords: Arts, Dance, Education, Transformative Learning
Gamification in Education or the Workplace to Increase Motivation and Engagement

Theresa Papp, University of Saskatchewan, Canada

Scope
Gamification uses game elements and frameworks that consumers have been exposed to for years. Gamification has been successful in inspiring increased student motivation and engagement or for any learning participant and can extend to parental and community engagement. Gamification is not to be confused with game-based learning which requires schools or corporations to have large budgets and specialized staff to create video games. In fact, gamifying a training program can be done without technology.

This workshop explores the elements of gamification and the transposition of these elements into a classroom or training setting. As the reality of schools change, in rural and urban locales, so must the classroom. The 21st Century is demanding a change in teaching and training. Harnessing the elements that drive relentless efforts to succeed in the virtual world can change the effects on students or employees and their learning experiences.

Goals and Objective
❖ Explanation of gamification and what does it look like in a classroom setting.
❖ 21st Century approaches for the 21st Century student or employee
❖ Discussion of 21st Century student needs, industry requirements of new employees, and preparation of students for the 21st Century workplace
❖ Gaming elements and how they can be applied to teaching or training
❖ Participants engage and experience gamified activities
❖ Demonstration of gamified training in action
Computer-Aided Identification of Childhood ADHD Using Robot-Assisted Test

Mun-Taek Choi, Sungkyunkwan University, Republic of Korea
Jinseob Yeom, Sungkyunkwan University, Republic of Korea

Abstract
This paper presents the machine learning approach to identifying children with ADHD for special education. We collected official real data for childhood ADHD and developed classifiers that successfully identify childhood ADHD in a sufficient level for practical uses. A unified frame that investigates a wide spectrum of classifiers and their optimal hyper-parameters was set up. A practical tool for the diagnosis of childhood ADHD was developed, which will, in effect, help needed children get proper educational services in a timely manner.

Keywords: Classification, Model Selection, Special Education, Identification of Children with ADHD

Introduction
Attention Deficit Hyperactivity Disorder (ADHD), defined as a neuro developmental disorder with symptoms of inattention, hyperactivity and impulsivity, has recently drawn significant research attention [1]. Especially ADHD is one of the most widely-known behavioral disorders in childhood [2]. The number of ADHD patients who were treated with medications rapidly increased by 11.8% per year from 2000 to 2005 [3]. Although there are complicated factors causing the increase, it can be partly explained by improved identification of ADHD [3].

Classifying or identifying children with ADHD in a timely manner is crucial to provide appropriate treatments to children in need [4]. Unfortunately, identifying ADHD children is a complicated matter involving time-consuming multi-informant, multi-method, professional efforts of pattern matching the patient’s symptoms [5]. In general, children take performance tests under the administration of professionals such as clinician or special teachers and parents complete questionnaires such as Child Behavior Checklist (CBCL/6-18), ADHD Rating Scale-IV and Disruptive Behavior Disorder Rating Scale. The professionals make diagnosis based on the overall results of the tests. Under severe clinical time constraints, many physicians may diagnose ADHD by emphasizing a present oriented, cross-sectional symptom evaluation. Moreover, this type of evaluation may result in over-diagnosing ADHD, or under-identifying ADHD in children with complex presentations [6]. Therefore, the development of a systematic evaluation system or a diagnostic tool to help identification of children with ADHD is demanded.

Considerable researches have been conducted on applying machine learning approaches to diagnosing or classify- ing ADHD subjects. [2] employed extreme learning machine (ELM) analyzing Brain Structural MRI data from 125 people. Finding ELM performs considerably better than SVM on classifying cortical features, they concluded that ELM may be used for automatic, efficient and objective clinical ADHD diagnosis. [7] applied pattern classification with Gaussian process classifiers to predict individual ADHD diagnosis. They tried to find neurobiological markers for ADHD by investigating task-based functional magnetic resonance imaging (fMRI) of inhibition. [8] utilized four classification algorithms to classify ADHD for predicting methylphenidate response, based on resting-state fMRI scans and various assessment test scores of 83 ADHD youth. [9] adapted SVM with feature selection to see if features of independent Event Related Potentials (ERP) components could be used for the classification of ADHD. [1] investigated classifying the ADHD of Combined Type, ADHD of Predominantly Inattentive Type and normal using Electroencephalography (EEG) data, obtained from 20 children between the ages of 8 and 12 years.

In this paper, we present the data analysis for identifying childhood ADHD using the data from a robot-assisted evaluation system. The remaining paper is organized as follows. In Materials and
Methods, technical details of how to obtain classification models with optimal hyper-parameters to the problem of identification of ADHD is clarified. In Results and Discussion, classification results and discussion are presented on exhaustive comparison of performance measures of various classification models. In Conclusion, conclusion and future research are addressed.

**Materials and Methods**

**Robot-Assisted Test System for Childhood ADHD**

We designed this test to help professionals diagnose childhood ADHD by testing children directly using a robot system. Through game-like activities with a robot during the test, potential abilities of children are fully showed, which leads to better assessments for ADHD children. The system measures three types of ADHD—inattentive type, hyperactive-impulsive type and combined type of both.

This test is targeted for children aged 9-11 years. A subject should be familiar with the test through a practice game. For a test, it takes about 10 minutes or more, depend on the subject’s ability.

As depicted in Fig. 1, the test environment is equipped with one large-screen TV, a webcam attached, one PC with test programs, one robot that guides the test and measure subject’s behaviors and a floor mat with numbers, printed on 3x3 cells. The actual scene of a test is shown in Fig. 1. The robot used in this test is a personal care robot, called Silbot [10].

The robot-assisted test currently contains 3 levels. Each subject is supposed to finish all 3 levels in a test. Every time it gets to the next level, the difficulty of a path increases by adding another cell. In addition, the stimulus is given once at level 1 and level 2 and twice at level 3.

**Sample Data Set**

The data set used in this analysis were obtained from the evaluation tests conducted for children in Seoul and Changwon, Korea, from April to June, 2016 and from January to February 2017. In the data set, there are total 3 labels for the severity of childhood ADHD, i.e., Normal, Moderate ADHD and Severe ADHD. The number of instances for labels are shown in Table 1. Among the total 15 features, 3 features are derived from parent’s scores for CBCL/6-18 and K-ADHDDS\(^1\) and 12 features are derived from the data recorded during the test game by the robot system.

---

\(^1\) It is a Korea-standard scale based on DSM-IV-TR and Gilliam ADHD Test [11].
To design good classification models or classifiers for the identification of children with disabilities, it is important to investigate with various classification algorithms and fully understand the performance characteristics of the

<table>
<thead>
<tr>
<th>TABLE 1</th>
</tr>
</thead>
<tbody>
<tr>
<td>STATISTICS OF DATA SET.</td>
</tr>
<tr>
<td>Label</td>
</tr>
<tr>
<td>Normal</td>
</tr>
<tr>
<td>Severe ADHD</td>
</tr>
<tr>
<td>Moderate ADHD</td>
</tr>
<tr>
<td>Total</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>TABLE 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>VALUES OF HYPER-PARAMETERS PER CLASSIFIER IN GRID SEARCH.</td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td>GBC</td>
</tr>
<tr>
<td>LRC</td>
</tr>
<tr>
<td>RFC</td>
</tr>
<tr>
<td>SVC</td>
</tr>
</tbody>
</table>

Note: Logistic Regression classifier (LRC), Support Vector Machine classifier (SVC), Random Forest classifier (RFC), and Gradient Boosting classifier (GBC)

To avoid overly generalizing classification performance of classifiers, it is important to measure performance with the different data, never seen during model learning. We partitioned the sample data into two sets of 60% for training and 40% for test and let the classifiers learned from the training set and evaluated classification quality using the test set.

A classifier exhibits different performances with different hyper-parameter settings. Finding optimal settings for classifiers becomes the problem of grid search with exhaustive scan of various hyper-parameter combination. Table 2 shows classifiers for the grid search and values of hyper-parameters in this implementation. (See Scikit-learn for the classifiers and parameters.) We defined the key names of classifiers and determined ranges of discrete hyper-parameter values per classifiers for the parameter scan.

During the evaluation of classifiers with different hyper-parameters, the classifiers should be validated with different data from the model learning to avoid generalization error. To avoid further partitioning of the data for the validation, we used 10-fold stratified cross validation.

**Results and Discussion**

To avoid mis-identification of children with ADHD, thoroughly investigating the quality of classification of a model is crucial. The quality of classification is represented by performance metrics. The performance metrics used in this study include accuracy, precision, recall and $F_1$ score [17]. Performance scores from the whole spectrum of the grid search with cross validation on the training set are shown in Table 3, including hyper-parameters, accuracy, precision, recall and $F_1$ score. The classifiers with different parameters are sorted into the descending order of $F_1$ score.

Each classifier with the best performing parameters were picked for further evaluation. To measure real performance of classification, the classifiers with the best parameters were evaluated using the
test set, excluded during training. Table 4 shows the results of the best performing classifiers, evaluated using the test set. The two classifiers, LRC and GBC, in Table 4 showed the $F_1$ score of higher than 82%, which means the classifiers are able to identify children with ADHD as confident as more than 82% of what human experts do in the field. As is practically meaningful if the confidence rate is over 80% [18], this machine learning approach showed highly confident results on the identification of children with ADHD using our robot-assisted system.

### Table 3

**Performance scores on the training set.**

<table>
<thead>
<tr>
<th>No.</th>
<th>Classifier</th>
<th>Params</th>
<th>Accuracy</th>
<th>Precision</th>
<th>Recall</th>
<th>F1 Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>GBC</td>
<td>{'n estimators': 32, 'learning rate': 1.0}</td>
<td>0.927</td>
<td>0.776</td>
<td>0.778</td>
<td>0.769</td>
</tr>
<tr>
<td>1</td>
<td>GBC</td>
<td>{'n estimators': 64, 'learning rate': 1.0}</td>
<td>0.927</td>
<td>0.776</td>
<td>0.778</td>
<td>0.769</td>
</tr>
<tr>
<td>2</td>
<td>GBC</td>
<td>{'n estimators': 128, 'learning rate': 1.0}</td>
<td>0.927</td>
<td>0.776</td>
<td>0.778</td>
<td>0.769</td>
</tr>
<tr>
<td>3</td>
<td>GBC</td>
<td>{'n estimators': 32, 'learning rate': 0.6}</td>
<td>0.922</td>
<td>0.779</td>
<td>0.775</td>
<td>0.768</td>
</tr>
<tr>
<td>4</td>
<td>GBC</td>
<td>{'n estimators': 64, 'learning rate': 0.6}</td>
<td>0.922</td>
<td>0.779</td>
<td>0.775</td>
<td>0.768</td>
</tr>
<tr>
<td>5</td>
<td>GBC</td>
<td>{'n estimators': 128, 'learning rate': 0.6}</td>
<td>0.922</td>
<td>0.779</td>
<td>0.775</td>
<td>0.768</td>
</tr>
<tr>
<td>6</td>
<td>GBC</td>
<td>{'n estimators': 32, 'learning rate': 1.4}</td>
<td>0.922</td>
<td>0.762</td>
<td>0.757</td>
<td>0.751</td>
</tr>
<tr>
<td>7</td>
<td>GBC</td>
<td>{'n estimators': 64, 'learning rate': 1.4}</td>
<td>0.922</td>
<td>0.762</td>
<td>0.757</td>
<td>0.751</td>
</tr>
<tr>
<td>8</td>
<td>GBC</td>
<td>{'n estimators': 128, 'learning rate': 1.4}</td>
<td>0.922</td>
<td>0.762</td>
<td>0.757</td>
<td>0.751</td>
</tr>
<tr>
<td>9</td>
<td>LRC</td>
<td>{'C': 100}</td>
<td>0.943</td>
<td>0.820</td>
<td>0.862</td>
<td>0.828</td>
</tr>
<tr>
<td>10</td>
<td>LRC</td>
<td>{'C': 1}</td>
<td>0.922</td>
<td>0.720</td>
<td>0.747</td>
<td>0.719</td>
</tr>
<tr>
<td>11</td>
<td>LRC</td>
<td>{'C': 0.01}</td>
<td>0.902</td>
<td>0.653</td>
<td>0.705</td>
<td>0.661</td>
</tr>
<tr>
<td>12</td>
<td>RFC</td>
<td>{'n estimators': 128}</td>
<td>0.933</td>
<td>0.835</td>
<td>0.772</td>
<td>0.787</td>
</tr>
<tr>
<td>13</td>
<td>RFC</td>
<td>{'n estimators': 64}</td>
<td>0.927</td>
<td>0.810</td>
<td>0.733</td>
<td>0.754</td>
</tr>
<tr>
<td>14</td>
<td>RFC</td>
<td>{'n estimators': 32}</td>
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<td>0.762</td>
<td>0.729</td>
<td>0.735</td>
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<tr>
<td>15</td>
<td>SVC</td>
<td>{'C': 10, 'kernel': 'rbf', 'gamma': 0.1}</td>
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<td>0.869</td>
<td>0.881</td>
<td>0.863</td>
</tr>
<tr>
<td>16</td>
<td>SVC</td>
<td>{'C': 100, 'kernel': 'rbf', 'gamma': 0.1}</td>
<td>0.959</td>
<td>0.869</td>
<td>0.881</td>
<td>0.863</td>
</tr>
<tr>
<td>17</td>
<td>SVC</td>
<td>{'C': 1000, 'kernel': 'rbf', 'gamma': 0.1}</td>
<td>0.959</td>
<td>0.869</td>
<td>0.881</td>
<td>0.863</td>
</tr>
<tr>
<td>18</td>
<td>SVC</td>
<td>{'C': 10, 'kernel': 'rbf', 'gamma': 0.01}</td>
<td>0.953</td>
<td>0.853</td>
<td>0.826</td>
<td>0.832</td>
</tr>
<tr>
<td>19</td>
<td>SVC</td>
<td>{'C': 1000, 'kernel': 'rbf', 'gamma': 0.01}</td>
<td>0.943</td>
<td>0.840</td>
<td>0.840</td>
<td>0.831</td>
</tr>
<tr>
<td>20</td>
<td>SVC</td>
<td>{'C': 10, 'kernel': 'linear'}</td>
<td>0.938</td>
<td>0.838</td>
<td>0.824</td>
<td>0.819</td>
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<tr>
<td>21</td>
<td>SVC</td>
<td>{'C': 100, 'kernel': 'linear'}</td>
<td>0.938</td>
<td>0.838</td>
<td>0.824</td>
<td>0.819</td>
</tr>
<tr>
<td>22</td>
<td>SVC</td>
<td>{'C': 1000, 'kernel': 'linear'}</td>
<td>0.938</td>
<td>0.838</td>
<td>0.824</td>
<td>0.819</td>
</tr>
<tr>
<td>23</td>
<td>SVC</td>
<td>{'C': 100, 'kernel': 'rbf', 'gamma': 0.001}</td>
<td>0.938</td>
<td>0.831</td>
<td>0.810</td>
<td>0.810</td>
</tr>
<tr>
<td>24</td>
<td>SVC</td>
<td>{'C': 100, 'kernel': 'rbf', 'gamma': 0.01}</td>
<td>0.943</td>
<td>0.826</td>
<td>0.812</td>
<td>0.806</td>
</tr>
<tr>
<td>25</td>
<td>SVC</td>
<td>{'C': 1000, 'kernel': 'rbf', 'gamma': 0.01}</td>
<td>0.943</td>
<td>0.826</td>
<td>0.812</td>
<td>0.806</td>
</tr>
<tr>
<td>26</td>
<td>SVC</td>
<td>{'C': 10, 'kernel': 'rbf', 'gamma': 0.001}</td>
<td>0.902</td>
<td>0.596</td>
<td>0.606</td>
<td>0.588</td>
</tr>
</tbody>
</table>
TABLE 4
PERFORMANCE SCORES ON THE TEST SET.

<table>
<thead>
<tr>
<th>No.</th>
<th>Classifier</th>
<th>Params</th>
<th>Accuracy</th>
<th>Precision</th>
<th>Recall</th>
<th>F1 Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>LRC</td>
<td>{'C': 100}</td>
<td>0.946</td>
<td>0.870</td>
<td>0.877</td>
<td>0.869</td>
</tr>
<tr>
<td>1</td>
<td>GBC</td>
<td>{'n estimators': 32, 'learning rate': 1.0}</td>
<td>0.938</td>
<td>0.874</td>
<td>0.795</td>
<td>0.826</td>
</tr>
<tr>
<td>2</td>
<td>SVC</td>
<td>{'C': 10, 'kernel': 'rbf', 'gamma': 0.1}</td>
<td>0.915</td>
<td>0.809</td>
<td>0.774</td>
<td>0.764</td>
</tr>
<tr>
<td>3</td>
<td>RFC</td>
<td>{'n estimators': 128}</td>
<td>0.915</td>
<td>0.824</td>
<td>0.718</td>
<td>0.742</td>
</tr>
</tbody>
</table>

To get the insight of how well the classifications were done for each category, the confusion matrices of the two classifiers, LRC and GBC, are presented in the Fig. 2 and 3, respectively. In this case, LRC has better performance on predicting Moderate ADHD than GBC. Instead of solely relying on the $F_1$ score, this information would be useful for applying this method in real situations.

Checking if classifiers suffer from high bias or high variance with learning curves is important, which would likely show what to do next. The learning curves for LRC and GBC are presented in the Fig. 4 and 5, respectively. Since the two scores are converging, but there are still a large gap between the two lines as the number of training examples increase, the classifiers suffer from high variance. We need to collect more sample data to improve performance.
Conclusion

This research investigated a machine learning approach to identifying children with ADHD for special education. The contributions of this work are described as follows. First, we collected real data for childhood ADHD and developed classifiers that successfully identify children with ADHD. Second, we set up a unified frame that investigates a wide spectrum of classifiers and their optimal hyper-parameters. Third, we provide a practical tool for use in the diagnosis of childhood ADHD, which will, in effect, help needed children get proper educational services in a timely manner.

Acknowledgments.: This material is based upon work supported by the Ministry of Trade, Industry & Energy (MOTIE, Korea) under Industrial Technology Innovation Program. No. 10048451, ‘Development of a Diagnostic and Training Robot System for Students with Autism and ADHD, compliant to 95% of Human Diagnostic Results’
References


Momentum Jharkhand: A State on the Move to Transform the Higher and Technical Education Sector

Parthajeet Das, Utkal University, India

Abstract

Jharkhand is a state in the eastern part of India, carved out from the larger state of Bihar in 2001. The state has abundant natural resources such as minerals and forests and is also home to large number of small and large industries that exploit these resources for development. However, the state and much of its population haven’t had a fair share of this development with the state’s poor report card having one of the lowest per capita incomes and human development indicators among the other states.

This phenomenon could be attributed to the fact that education and especially the higher education in the state hasn’t kept pace with the changes in the Indian economy. The participation rate is one of the lowest in the country at 15% and the quality and relevance of education imparted in the colleges and universities leaves a lot to be desired with poor industry-academia linkages, low employability of students, inadequate number of qualified and trained faculty and absence of research and development.

However, with a change in government in 2015 ushering visionary political leadership and dynamic administrative enthusiasm the higher and technical education sector in the state is at the cusp of a transformation. The state has a firm resolve to disrupt the status quo at the universities and colleges so as to power a knowledge based economy and society. The initiatives range from operational reforms in regulatory framework, rules and regulations, governance and management to meeting mandatory requirements of Quality Assurance and Accreditation, introducing Choice Based Credit System to strategic initiatives such as developing a policy to increase private sector participation to increase enrolments and quality, rationalisation of courses, setting up Centres of Excellence and pursuing internationalisation.

This paper seeks to detail out the context of the higher and technical education of the state, roadmap for excellence, initiatives undertaken and the course of action for the medium to long term future. The paper highlights the enablers and catalysts of this direction and pace of movement which can be useful inputs for design and implementation of transformation programmes in other states with similar context in India and elsewhere in the world.

Keywords: Higher education, technical education, quality, enrolment
Performance Perceptions of First Year Accounting Students

Audra Ong, University of Windsor, Canada
Peter Savoni, University of Windsor, Canada

Abstract
The factors influencing students’ success or otherwise in university or college accounting courses have attracted the attention of several researchers. Studies have demonstrated that previous accounting study, culture and language have their influence. In addition, teaching methods have been scrutinised for their effectiveness.

This study of 40 university students in the first six weeks of a Year 1 introductory financial accounting course contributes to the debate by focusing on a potential relationship between study behaviour of students, their perceptions and their examination performance.

Using a self-completion questionnaire, students were asked to identify the length of time they spent each week studying, their level of class attendance and their expectations of the grade they would achieve in the mid-term examination.

The results show that the range of hours spent in personal study is from less than 1 hour to more than 7 hours per week. Attendance at classes also varied from one class to every class. The students were also asked to declare the grade that they would achieve in the mid-term examinations that were to be held a few days after the distribution of the questionnaire.

The samplesize is small and there were no statistical relationships between the students’ self-assessed studying behaviour and their predictions of their future examination grade. However, the University has a declared policy on grading levels and it was obvious that many students were being over-optimistic in their predictions.

A second shorter questionnaire was distributed shortly after the mid-term examination results were announced. There was an unsurprising difference between students’ perceptions and their actual level of achievement. However, the consequences of the examination led to a statistically significant increase in the number of students spending more time studying. There was no statistical significance in class attendance.

Although the mid-term examination results influenced the studying behaviour of some students, it did little to influence their predictions of the grades that they would achieve in the final examinations. The spread of grades expected are higher than those set by university policy.

Keywords: education, students, perceptions.

Introduction
All business or commerce degrees include a study of financial accounting in the first year. Generally, on such courses, it is assumed that the student has none or little prior knowledge of the subject. The first semester usually includes accounting information system, accruals accounting, the four financial statements and such topics as revenue recognition, inventory valuations and cost of sales. In countries that have adopted International Financial Reporting Standards, it is probable that the first semester also includes a study of the Conceptual Framework.

As in most disciplines, educators and students are very interested in performance. From the educators view it can be considered a measure of their own abilities in conveying knowledge. From the students view, a good grade can be a reward for hard work, a measure of their ability and a stepping-stone towards their final degree.
Given the importance of performance in accounting courses, it is not surprising that there is a rich literature examining all aspects of it. Research in this area is normally organized in five major sections (Apostolou, Dorminey, Hassell, Rebele, 2016). These are:

Curriculum and instruction, including assessment practices and assurance of learning.
Instruction by content area and section
Educational technology.
The student perspective of accounting education, including career issues, skills, and approaches to learning.
Faculty research, teaching, and other issues.

Essentially, studies are considering the delivery of the material, the nature of the content and the response of the recipients. One robust strand of research concentrates on the recipients and, importantly, the factors that can affect their performance. In our present research, we concentrate on performance. Many studies have explored student characteristics that may affect performance and we contribute towards those studies by considering the students’ perception of their own performance.

The next section reviews the relevant literature and this is followed by an explanation of our own pilot study and the results we have obtained. The final section reflects on the strengths and weaknesses of our study and posits tentative proposals on the further conduct of the study. The key research question embedded in this current research is whether students studying behaviour is influenced by their perceptions of their performance and can a change in perception lead to a change in behaviour.

**Literature review**

There have been numerous studies that have considered the effect of the instructional method on student performance. These have ranged from the use of learning journals (Daff 2016) and the use of clickers on performance. Chui, Martin, and Pike (2013) reported that students using clickers considered they had more confidence about their grade and spent significantly less time studying than students who did not use clickers. Whether clickers contribute towards better examination performance is uncertain. A comparison of two groups by Eng, Lea, and Cai (2013) showed that (1) students using clickers performed better on two exams, (2) students not using clickers performed better on two exams, and (3) both groups performed about the same on two exams.

Other studies concentrated on the background or characteristics of students to explain their levels of performance. One aspect of a study by Einig (2013) revealed that prior accounting knowledge and country of origin were also associated with exam performance. This finding was confirmed by Sargent (2013) in a quasi-experimental analysis that examined the association between prerequisite knowledge and student performance. One group had no prerequisite knowledge but another group was given an online prerequisite training/tutoring tool. The results show higher performance in intermediate accounting II for the treatment group, thus suggesting a multiple course effect.

However, caution must be exercised in interpreting these results. A study in the UK (Rowbottom2013) examined whether accounting courses taken prior to university entrance were associated with student performance. The results revealed that students with an Accounting A-Level (the examination qualification in the final year of high school) have an initial advantage, which dissipates over time and is associated with lower overall performance at the end of university studies.

Coetzee, Schmulian, and Kotze (2014) in a South African study explored accounting students’ communication apprehension and its association with culture and language. The analysis reveals significant differences in communication apprehension across culture groups. Communication apprehension was higher for students from poor communities. The study also found that students who received instruction in the business language that was to be used upon graduation showed less communication apprehension, regardless of their home language.

Some studies have included International Financial Reporting Standards and hence the IASB’s Conceptual Framework. Janse van Rensburg, Coetzee, and Schmulian (2014) in a South African study evaluated students’ reading comprehension of the Conceptual Framework using the Cloze procedure. There was a significantly positive association between the students’ Cloze reading comprehension
scores and the language of instruction. Students who had attended a prior reading course also received significantly higher Cloze scores. The conclusion was that language and reading comprehensive instruction affected learning.

One study most relevant to our investigations was conducted by Scully and Kerr (2014). They surveyed students about their study times and perceptions of workload in undergraduate and graduate accounting courses at a large Australian public university. The results suggested a mismatch between hours students spent studying and their reported perception of meaningful learning. The findings suggested that the curricula of accounting units might be improved by managing student perceptions and setting expectations of course workload.

**Research method**

This reported research is part of a larger study concerned with the learning behaviours and performance of first year students on an introductory course at a mid-size Canadian University. The aim of the project was to establish the factors that may affect the performance of students in examinations with particular attention paid to the time spent studying.

Two short self-completion questionnaires were completed by 40 first year students. The first questionnaire was completed at the end of the first six weeks of the course and two days prior to the mid-term examinations. In addition, unstructured discussions were conducted individually with five students.

One week after the mid-term examination results had been announced a shorter follow up questionnaire was completed. This focussed on the studying behaviour of the 40 students.

The questionnaires were anonymous and the students were informed that the questionnaires would be destroyed within one week of collection and no attempt would be made to identify individual students. We emphasise that the responses from students are their own estimation of their studying habits.

For this study, no hypotheses were constructed for the surveys but statistical testing was conducted to identify any potential fields worthy of further study. We discuss those findings where a chi square test demonstrated significant differences.

**Findings**

**Student characteristics**

In line with previous studies, we asked questions concerned with the background of the students. The first table shows that approximately one third of the students had studied accounting for a period of time. The results are shown in Table 1.

<table>
<thead>
<tr>
<th>Students with have studied accounting before</th>
<th>Number</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>One semester or more</td>
<td>14</td>
<td>35.0</td>
</tr>
<tr>
<td>Little or none</td>
<td>26</td>
<td>65.0</td>
</tr>
<tr>
<td>Total</td>
<td>40</td>
<td>100.0</td>
</tr>
</tbody>
</table>

At this stage, no attempt was made to measure the current performance of those students who had previously studied accounting. The research by others indicate that students who have had previous exposure of the subject can improve their performance. However, the research by Rowbottom (2013) who used a specific measure of previous performance (the United Kingdom’s high school “A” levels), suggests that the effect of previous exposure to accounting may have an uncertain benefit depending on other factors.
Levels of difficulty

Little attention has been paid in the research to the level of difficulty the students are experiencing in their studies. One might anticipate that if students experienced little difficulty then this would impact on the amount of time they spent studying and the number of lectures they attended.

We considered this could be an important factor and one question asked students the level of difficulty they experienced with the different topics that had been covered. In designing the questionnaire, we allowed students to express “no opinion” as we accepted that after only 6 weeks of the course opinions may not have been fully formed. The results are shown in the following table.

Table 2  
Level of difficulty with topics

<table>
<thead>
<tr>
<th>Topic</th>
<th>Difficult</th>
<th>No opinion</th>
<th>Easy</th>
</tr>
</thead>
<tbody>
<tr>
<td>The elements of the four financial statements</td>
<td>No 8</td>
<td>% 20.0</td>
<td>5</td>
</tr>
<tr>
<td>The relationship of the four financial statements</td>
<td>No 9</td>
<td>% 22.5</td>
<td>8</td>
</tr>
<tr>
<td>The accounting information system</td>
<td>No 15</td>
<td>% 37.5</td>
<td>13</td>
</tr>
<tr>
<td>Accrual accounting</td>
<td>No 18</td>
<td>% 45.0</td>
<td>4</td>
</tr>
<tr>
<td>Internal control and cash</td>
<td>No 19</td>
<td>% 47.5</td>
<td>3</td>
</tr>
<tr>
<td>Revenue recognition</td>
<td>No 18</td>
<td>% 45.0</td>
<td>5</td>
</tr>
<tr>
<td>Matching concept</td>
<td>No 16</td>
<td>% 40.0</td>
<td>8</td>
</tr>
<tr>
<td>Cost of goods</td>
<td>No 13</td>
<td>% 32.5</td>
<td>4</td>
</tr>
<tr>
<td>Inventory valuations</td>
<td>No 15</td>
<td>% 37.5</td>
<td>13</td>
</tr>
</tbody>
</table>

We held no preconceptions on the possible responses, although experience suggested that many first year students find accrual accounting a formidable hurdle. Studies by Weil (1989) and Weil and McGuigin (2010) have identified students’ difficulties in understanding bank reconciliations.

Undoubtedly, revenue recognition can be tortuous for qualified accountants. At the time of this research, IAS 18 Revenue was being taught and IFRS 15 Revenue from contracts with customers had not come into effect.

As we expected, students experience difficulty in studying. One pertinent question to ask was where they went for advice. The responses are shown on the following table.

Table 3  
Sources of advice

<table>
<thead>
<tr>
<th>Sources of advice</th>
<th>Number</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Google</td>
<td>21</td>
<td>52.5</td>
</tr>
<tr>
<td>Friends and relatives</td>
<td>2</td>
<td>5.0</td>
</tr>
<tr>
<td>Professor</td>
<td>5</td>
<td>12.5</td>
</tr>
<tr>
<td>Text book</td>
<td>7</td>
<td>17.5</td>
</tr>
<tr>
<td>YouTube</td>
<td>5</td>
<td>12.5</td>
</tr>
<tr>
<td>Total</td>
<td>40</td>
<td>100.0</td>
</tr>
</tbody>
</table>

It may be disappointing to lecturers that they rank only third equal with YouTube and far behind Google. In discussions with students, they claimed that the advantages of google were immediate accessibility and a potential range of explanations on a particular topic. An issue that arises from these findings that we do not explore is the use of Google on University courses.
**Studying behaviour and performance**

A central core of the present study was the studying behaviour of students. We measured this in two ways. First was based on hours studying accounting each week and the second was the number of classes attended. The results are shown below and we would emphasise that these are based on students’ self-assessment.

One question asked student to state (honestly) how many hours did they spend each week studying Financial Accounting (excluding lecture hours). The results are shown in Table 4.

<table>
<thead>
<tr>
<th>Number of hours</th>
<th>Number</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>5 hours or more</td>
<td>8</td>
<td>20.0</td>
</tr>
<tr>
<td>3-4 hours</td>
<td>14</td>
<td>35.0</td>
</tr>
<tr>
<td>2 hours or less</td>
<td>18</td>
<td>45.0</td>
</tr>
<tr>
<td>Total</td>
<td>40</td>
<td>100.0</td>
</tr>
</tbody>
</table>

Almost half of the students responded that they spent 2 hours or less studying. A closer examination of these results revealed that a few students claimed to spend less than one hour.

A second question relevant to studying behaviour asked the students how many classes they attended approximately in the first six weeks of the semester. The results are shown on the following table.

<table>
<thead>
<tr>
<th>Number of classes attended</th>
<th>Number</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>All</td>
<td>15</td>
<td>37.5</td>
</tr>
<tr>
<td>Most</td>
<td>16</td>
<td>40.0</td>
</tr>
<tr>
<td>Half or less</td>
<td>9</td>
<td>22.5</td>
</tr>
<tr>
<td>Total</td>
<td>40</td>
<td>100.0</td>
</tr>
</tbody>
</table>

We expect that the above results would not be far different to the experiences of some of our colleagues. We would add that the instructor on this course has a high ranking in teaching evaluation.

There seems to be a general opinion that class attendance has been declining over recent years. One reason that has been voiced is that many students now must take part-time work because of financial obligations. Further research to determine whether there is a decline in class attendance and the possible reasons would be useful. The findings from this survey on the use of Google and YouTube may offer an explanation.

We accept that time spent on studying and class attendance is not, by itself, necessarily reflected in examination performance. However, without significant feedback, students may consider that the amount of work they do is sufficient to obtain a good grade. The grades are given a letter (A – F) and each letter represents a percentage range. For example, Grade A range is as follows:

- A+ 90-100%
- A 85- 89.9%
- A- 80-84.9%

The following table shows the grade that the students expected to obtain in the mid-term exam.
An important factor in the grading assessment is the University’s grading policy. For first year courses, the prescribed mean for students’ course grades must fall between 60% and 72.9%. Thus, the instructor reserves the right to adjust and curve the final marks as necessary in order to conform with the prescribed average.

Grade B starts at 70% (B-) and the top range is 79.9% (B+). It is evident that if the prescribed mean, under University policy, must fall between 60% - 72.9%, several students are going to be disillusioned.

The next table shows the actual grade they achieved compared to the expected grade.

### Table 7
**Expected and actual performance at mid-term exam**

<table>
<thead>
<tr>
<th>Grade</th>
<th>Expected performance</th>
<th>Actual performance</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Number</td>
<td>%</td>
</tr>
<tr>
<td>A</td>
<td>11</td>
<td>27.5</td>
</tr>
<tr>
<td>B</td>
<td>27</td>
<td>67.5</td>
</tr>
<tr>
<td>C</td>
<td>2</td>
<td>5.0</td>
</tr>
<tr>
<td>D</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>F</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Total</td>
<td>40</td>
<td>100</td>
</tr>
</tbody>
</table>

Even allowing for some optimism, there is a substantial gap between expectations and actual performance. Given this feedback, was there a change in studying habits? The following table shows the adjustment the students claim to have made to their studying hours. It shows their reported house spent on studying before the midterm examination and their reported hoursspent studying after the mid-term examination. In this table, we show the complete range of hours that were on the questionnaire.

### Table 8
**Adjustment to studying hours**

<table>
<thead>
<tr>
<th>Prior studying hours</th>
<th>Current studying hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number</td>
<td>Percent</td>
</tr>
<tr>
<td>7 hours or more</td>
<td>1</td>
</tr>
<tr>
<td>5-6 hours</td>
<td>7</td>
</tr>
<tr>
<td>3-4 hours</td>
<td>14</td>
</tr>
<tr>
<td>1-2 hours</td>
<td>13</td>
</tr>
<tr>
<td>1 hour or less</td>
<td>5</td>
</tr>
<tr>
<td>Total</td>
<td>40</td>
</tr>
</tbody>
</table>
There has been little change at the top end and at the bottom of the scale. The big difference is the movement from the 1-2 hour range to the 3-4 hour range. Using the chi test, this is a significant movement. We are unable to state whether this is a permanent movement or an immediate not temporary response to their performance in the mid term. As far as class attendance was concerned, there were no statistically significant differences in class differences before and after the midterm examinations.

The above table demonstrates that some students claim to have changed their studying behaviour after the mid-term examination results. This leads to the question whether the feedback from the mid-term may have influenced their perceptions of the performance in the final examinations. The following table shows their expectations in the mid-term examinations, their actual performance and their expectations of their performance in the final examination.

<table>
<thead>
<tr>
<th>Grade</th>
<th>Expected performance in mid-term test</th>
<th>Actual performance in mid term</th>
<th>Expected performance in final exam</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>No</td>
<td>%</td>
<td>No</td>
</tr>
<tr>
<td>A</td>
<td>11</td>
<td>27.5</td>
<td>5</td>
</tr>
<tr>
<td>B</td>
<td>27</td>
<td>67.5</td>
<td>22</td>
</tr>
<tr>
<td>C</td>
<td>2</td>
<td>5.0</td>
<td>9</td>
</tr>
<tr>
<td>D</td>
<td>-</td>
<td>-</td>
<td>3</td>
</tr>
<tr>
<td>F</td>
<td>-</td>
<td>-</td>
<td>1</td>
</tr>
</tbody>
</table>

There are shifts that are interesting. The number of students expecting to obtain a grade in the A range is high. Due to curving of marks under university regulations, this is not possible unless a large number of students fail. None anticipate doing so! Those who expected to obtain a B grade in the mid-term seemed to have adjusted to a C Grade. No students expect to fail.

**Conclusions**

The characteristics or attributes that may expect students’ performance in their course has attracted a substantial number of research studies. There are fewer that have attempted to link students’ performance to their study behaviour and their perceptions of the performance they will achieve in the examinations.

This study attempts to address that link and also to form a basis of a future more comprehensive study. The relative small sample size in this of 40 students makes statistical analysis insufficiently rigorous. In addition, the students had only been studying accounting for six weeks, although one third had some previous instruction. However, the initial findings of this research present an interesting insight into students studying habits and their changing perceptions of their expected performance in examinations.

The hours student spend studying vary considerably and future research should relate this to both to any previous studies of accounting and the level of difficulty students’ experience with the topics that have been addressed in the first six weeks of the semester. The finding that some lecturers may find disappointing is that students having difficulty are far more likely to refer to Google that the lecturer for an explanation.

The hours spent studying and the attendance at class very considerably. Future studies could investigate a possible relationship between the characteristics and attributes of the students and their studying behaviour.

Given the studying behaviour of the students and the University regulations on grading, many students seem overly optimistic of their potential performance in the midterm examinations. It is
likely that this feedback prompted many students to revise their expectations of their achievements in the future final examinations. There was a significant increase in the number of students studying 3-4 hours per week from 1-2 hours per week.

It is difficult to conclude whether this change in time spent studying is a temporary phenomenon. The findings reveal that a number of students are over-optimistic of the achievement they will have in the final examination. However, the evidence from this research is that student’s perceptions and studying behaviour are shaped by feedback. In this case, the feedback is through examination performance. It is open to further research to determine whether regular feedback by weekly tests have the same effect if it is not linked to the student’s final grade at the end of the course.
References


Investigation of Mobile Learning and Mobile-Assisted Teaching Practices among Students and Lecturers in a Higher Education Institution

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Abstract

The rapid development of mobile technologies in recent years has induced more and more students and lecturers to use powerful mobile devices (e.g. smartphones, tablets, laptop computers, etc.) and learning software/apps to assist their learning and teaching, which has greatly enhanced the effectiveness of subject learning in higher education. It is, therefore, very important to investigate how mobile devices and learning software/apps facilitate teaching and subject learning in tertiary institutions, and how mobile learning can be promoted effectively in higher education. In this study, we will analyse and discuss the data collected from two surveys and follow up interviews among lecturers and students in the Education University of Hong Kong (EdUHK) about their current practices regarding the use of mobile technologies in their teaching and subject learning respectively. In the findings, we will identify effective mobile learning resources and good practices of mobile-assisted teaching and subject learning. We will also discuss the establishment of a Mobile Learning Community (MLC) to promote mobile learning and mobile-assisted teaching among students and lecturers in higher education. Some key factors of establishing a successful mobile learning community will be discussed. It is hoped that this study will shed some light on how good practices of mobile learning and mobile assisted teaching can be promoted effectively in tertiary institutions.

Keywords: mobile technologies, Mobile Learning Community (MLC), learning apps, higher education.
University Support, Adjustment, and Mental Health in Tertiary Education Students in Hong Kong

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Abstract
Depression, anxiety and stress of moderate to severe levels were found in 21%, 41% and 27% of university students in Hong Kong respectively. The development of a screening tool for assessing adjustment difficulties among tertiary education students is helpful for counselling professionals in university. The Student Perception of University Support and Structure Scale (SPUSS), based on concepts articulated in Baumrind’s theory of parenting styles, to measure a supportive and structured college environment. The present study used exploratory and confirmatory factor analysis to examine whether the SPUSS’ structure is consistent with the typology of four parenting styles. Secondly, factor scores were used to test the hypothesis that a supportive and structured university environment would be associated with students’ psychological adjustment as indicated by measures of depression, anxiety, and stress. Participants were 773 tertiary education students aged 18 to 25 from three Hong Kong universities. The SPUSS shows a four-factor structure consistent with models of parenting styles; the factor scores have excellent psychometric properties; and the factors represent students’ views of the university environment as authoritative, authoritarian, permissive, or neglectful. This model is different from Yau’s three-factor data-driven model, which identified factors representing psychological, academic, and social adjustment. (2) This study provides evidence of predictive validity in that higher scores on the authoritative factor were related to the lower levels of anxiety, depression, and stress.

Only about 2% of students in Hong Kong leave university without completing their degree program, compared to rates of between 20% and 40% in the US and the UK. This number suggests that students in Hong Kong enjoy their studies and life at university. However, one large-scale mental health survey of 7915 first year Hong Kong university students suggested otherwise. Depression, anxiety and stress of moderate to severe levels were found in 21%, 41% and 27% of university students respectively. The present study used exploratory and confirmatory factor analysis to examine whether the SPUSS’ structure is consistent with the typology of four parenting styles. Secondly, factor scores were used to test the hypothesis that a supportive and structured university environment would be associated with students’ psychological adjustment as indicated by measures of depression, anxiety, and stress. Participants were 773 tertiary education students aged 18 to 25 from three Hong Kong Universities. The results indicated that (1) the SPUSS shows a four-factor structure consistent with models of parenting styles; the factor scores have excellent psychometric properties; and the factors represent students’ views of the university environment as authoritative, authoritarian, permissive, or neglectful. This model is different from Yau et al.’s three-factor data-driven model, which identified factors representing psychological, academic, and social adjustment. (2) This study provides evidence of predictive validity in that higher scores on the authoritative factor were related to the lower levels of anxiety, depression, and stress.
Leasing of Assets: A Content Analysis of Comment Letters

Roger Hussey, University of Windsor, Canada

Abstract

As part of the FASB and the IASB’s work programme towards convergence of standards a leasing project was added to their agenda in July 2006. The aim of the project was to develop a single approach to lease accounting that would ensure that all assets and liabilities arising under lease contracts would be recognised in the statement of financial position.

This was a dramatic change to the existing regulations in IAS 17 Leases that allowed leases to be classified as either operating leases or finance (capital) leases. With operating leases the asset does not appear on the balance sheet but in the Income Statement. With finance leases, the asset and liability appear on the balance sheet.

The impact of these proposals would have a substantial impact on the financial statements. Preparers would need to determine the leases they held and in some companies this could be a substantial number. The asset and corresponding liability has then to appear on the balance sheet. For users, the financial statements could appear very different and require a different analytical approach.

In March 2009, the IASB, jointly with the FASB, published a Discussion Paper Leases: Preliminary Views. The discussion paper was open for comment until 17 July 2009. In August 2010, the IASB, jointly with the FASB, published an Exposure Draft Leases. The Exposure Draft was open for comment until 15 December 2010. The responses were not favourable. In 2013, a second Exposure Draft ED/2013/6 was issued.

Our analysis of the Comment Letters submitted show that the majority of respondents disagreed with many of the proposals in the Discussion Paper. Based on these results the research strategy was amended to conduct a content analysis of the Comment Letters submitted in response to Exposure Draft 2. The analysis concentrated on UK and US companies but included all their Comment Letters, a total of 137.

The results demonstrate, at least for companies, that the US respondents overwhelmingly rejected either the accounting concept or the standard (90% of US respondent companies compared to 44% of UK respondent companies). A further analysis revealed that the greatest disagreement was with the concept.

Introduction

In 1996, the G4+1 published a special report entitled Accounting for leases: A new approach. The report advocated an approach to lease accounting, whereby the distinction between finance leases and operating leases would be removed. Lessees would recognize as assets and liabilities all material rights and obligations arising under lease contracts. (McGregor, 1996)

In March 2009, the IASB, jointly with the FASB, published a discussion paper Leases: Preliminary Views. The discussion paper was open for comment until 17 July 2009. In August 2010 the IASB, jointly with the FASB, published an exposure draft Leases. The exposure draft was open for comment until 15 December 2010. The responses were not favourable and in January 2011, a Comment letter summary on ED 2010 was issued to be followed by a second Exposure Draft ED/2013/6.

The motivation for this research was to identify the nature and source of the respondents’ criticisms of the original Discussion Paper that led to the unusual step of a second Exposure Draft. A Contents Analysis was therefore conducted of the first 150 responses to the Discussion Paper. On the
publication of the second Exposure Draft, a further content analysis was conducted of all submissions by UK and US companies.

The first section of this paper reviews the existing regulations and research. The second section explains the methodology applied in the study. The main part of the paper provides the analysis and discusses of the findings. This is followed by an explanation of the limitations of the research and suggestions for future research.

Background to the research

Under current regulations it is claimed that companies using U.S. standards can structure agreements to avoid the quantitative thresholds and define the lease which best meets their purposes (McBarnet & Whelan, 1992). Criticisms on the ethicality of intentionally structuring lease contracts to avoid disclosing leased asset and liability amounts are voiced frequently. There is also the contention that the “slippery slope” of rule-based accounting for synthetic leases and special purpose entities, led to the accounting scandals at Enron and other companies (Frecka 2008).

Given the substantial differences between the U.S. and International Standards (IFRSs) and the claimed abuse of the U.S. standard, it is not surprising that a leasing project was added to the International Accounting Standards Body’s agenda in 2006 to develop a new international accounting standard that addresses the deficiencies in existing regulations for accounting for leases. The US Financial Accounting Standards Board’s involvement stems from its commitment originally given in the Norwalk agreement, to converge U.S. standards with International standards. The aim of the project is to develop a new single approach to lease accounting that would ensure that all assets and liabilities arising under lease contracts are recognised in the statement of financial position.

One area of research germane to this paper has been the extent to which leases are being used as a form of off-balance sheet finance and the impact on lessees’ financial statements and financial ratios if they were required to capitalise all leases (Ashton 1985; Imhoff, Life and Wright 1991, 1993; Bennet and Bradbury 2003). The findings appear to be consistent in several countries and indicate that leverage ratios would be significantly increased by capitalising leases, other performance ratios would be also affected but not so significantly and certain industries such as airlines, retailers, hotels, and vehicle distributors would be most impacted.

In a Canadian study, the above findings were confirmed (Durocher 2008). The results indicate that capitalizing operating leases would lead to the recognition of important additional assets and liabilities on the balance sheet. It would therefore significantly increase the debt-to-asset ratio and significantly decrease the current ratio. These results were noted across all industry segments in the sample. Income statement effects were generally less material. Significant impacts on return on assets, return on equity, and/or earnings per share were noted in only three industry segments: merchandising and lodging, oil and gas, and financial services.

One can argue that the findings of the above studies are not surprising. If you incorporate items on the balance sheet that were previously omitted you will obtain different accounting ratios. This result, in itself, does not provide justification for including items on the balance sheet. However, if there is evidence that users require the information and, on a conceptual basis, it can be incorporated, there appears to be no barriers for doing so.

There have been several studies that demonstrate how lease information is perceived and interpreted by the preparers and users of financial statements. The earliest studies tended to concentrate on users’ understanding of the different impact of finance and operating leases

For example, Breton and Taffler (1995) conducted a study with 63 UK stockbroker analysts in which not one of the analysts adjusted amounts or ratios for operating leases.

Gopalakrishnan and Parkash (1996) surveyed CFOs of all Fortune 500 firms (borrowers), 400 chief credit officers of banks (lenders), and to private placement department heads of 100 insurance firms (lenders). Lenders believed all items (e.g., capital leases, deferred tax liabilities, pension obligations, operating leases, etc.) to be more like liabilities than did borrowers.
A UK study further analyzes the distinct views of preparers and users. Beattie, Goodacre and Thomson, (2006) surveyed 415 finance directors of UK firms that were included in the UK quoted industrials (preparers), 400 financial analysts from a London-based associate members list (users), and 72 fund managers listed in CA Magazine (users). Respondents were asked to indicate the extent to which they agreed with a number of statements regarding lease information.

Some of the main findings of the study were that both users and preparers considered that companies abused the standard to achieve off-balance sheet finance and that the present information is of little value to users. Users were more likely than preparers to request all leases to appear on the balance sheet and preparers were more likely to consider that the costs of any changes would outweigh the benefits. The response rates to this study were not high and the strength of the finding open to various interpretations.

A Canadian study by Durocher and Fortin (2009) investigated private business bankers’ preferences on the issue of capitalizing all non-cancellable lease contracts, including operating leases, as suggested by the G4+1. The study found that while bankers use both capital and operating lease information, they give significantly more consideration to the former when analysing private business loan requests. Accordingly, operating lease information receives less attention than capital lease information in the credit-granting decision process. The authors conclude that “the capitalization of operating leases would improve bankers’ ability to evaluate long-term finance commitments of lessees and, as a result, bankers would increase their estimates of the risks involved in providing finance to them” (Durocher and Fortin, 2009, p. 39).

Research has shown that companies complying with a US standard that contains bright line rules are more likely to classify leases as operating than companies that use IFRS and a principle based standard (Collins, Pasewark and Rilet 2012)

**The Discussion Paper**

A total of 302 comment letters were received in response to the Discussion Paper. Standard letters that were from members of any Associations were excluded but the main letter from the Association itself was retained. Responses from EU and US companies were identified and this gave a total of 214 comment letters for analysis. Content analysis was used as this is a method by which selected items of qualitative data are systematically converted to numerical data.

There are two main approaches to content analysis: mechanistic and interpretive (Hooks and van Stadden, 2011). For this study, a mechanistic method was adopted and the analysis is based on volumetric or frequency capture rather than an interpretative method. In other words, the exact word such as “definition” or “measurement”.

For the coding units, themes were identified. This was aided as the letters were responding to specific points raised in the Discuss Paper so boundaries were established on the topics to be addressed. The main themes selected for our analysis are shown on the following table with a brief example from the Comment Letters.

<table>
<thead>
<tr>
<th>Theme</th>
<th>Example</th>
</tr>
</thead>
<tbody>
<tr>
<td>The requirements are too complex</td>
<td>CL 29: Major concern with the right of use model proposed in the Discussion Paper is that it will create excessive complexity and burdens for preparers.</td>
</tr>
<tr>
<td>Useful information will not be generated</td>
<td>CL103: We do not perceive value in recognising a right of use asset and obligation in the balance sheet</td>
</tr>
<tr>
<td>The measurement method is deficient</td>
<td>CL 130: What is not firmly measurable should not be recognised CL</td>
</tr>
<tr>
<td>Concern over definition of a lease</td>
<td>CL 2: I am concerned that you good folk have lost touch with reality, as evidenced by your latest proposal to treat every lease as both an asset and a liability.</td>
</tr>
</tbody>
</table>
In conducting the analysis we counted the reference to one of our themes in a Comment Letter as “one”, although the submitter may have referred to the two or more times in the Letter. Also, we did not attempt to gauge the intensity of the remarks. We assessed whether the sender was in favour or against the particular proposal in the DP.

In the following analysis, the responses in the Comment Letters from the EU are compared to those from the US for each of the main themes. First, we consider the doubts raised on the definition of a lease. The results are shown in table 1.

**Table 1**

| Concern over the definition of a lease |
|-------------------------------|-------------------|-------------------|-------------------|
|                               | EU                | US                | Total             |
|                               | No.   | %    | No.   | %    | No.   | %    |
| No                             | 89    | 67.4 | 33    | 40.2 | 122   | 57   |
| Yes                            | 43    | 32.6 | 49    | 59.8 | 92    | 43   |

The majority of the EU respondents (32.6%) did not express doubts over the definition of a lease whereas the position was reversed for the US respondents (59.8%). Further research would be required to identify the reasons and whether both groups were voicing the same doubts or we are considering two different perspectives.

There was unease expressed by the respondents on the definition of an operating lease as a right to use asset. Several of the respondents argued that it would have been best to define an asset in the Conceptual Framework project before raising a new definition within the body of a proposed standard. Lengthy discussion was also given to whether such an asset was a tangible asset or an intangible asset. The following Comment Letter 15 captures some of the argument.

We question the proposed model to recognize assets and liabilities for any leases entered into without consideration of whether substantial risks and rewards are transferred. We believe that only such lease contracts that are in substance represent financial transactions for lessees to acquire effective ownership of an asset should be recognized in the statement of financial position.

Another view that appears to speak in opposition to the entire purpose of the project is Comment Letter 9.

Under the current lease accounting standards, operating leases are accounted for as a rental expense and do not impact small business lessees’ liability on financial statements. Because the DP would reclassify operating leases as capital leases, this would substantially increase the debt shown on small business lessees’ financial statements. This would also cause these small companies to have financial statements that show reduced earnings and reduced capital. Further, with more assets on their balance sheets, certain small business lessees, like community banks, might be required to increase their capital reserves as risk mitigation to satisfy capital adequacy rules.

There were lengthy comments on the measurement proposals given in the discussion paper. Although the majority in both groups did not express concerns, the following table demonstrates that those in the US were far more likely to do so.
Table 2
The measurement guidance is deficient

<table>
<thead>
<tr>
<th></th>
<th>EU</th>
<th>US</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>No.</td>
<td>%</td>
<td>No.</td>
</tr>
<tr>
<td>No</td>
<td>87</td>
<td>65.9</td>
<td>44</td>
</tr>
<tr>
<td>Yes</td>
<td>45</td>
<td>34.1</td>
<td>38</td>
</tr>
</tbody>
</table>

The method of measuring the proposed asset received some criticism. This is particularly so with US companies where 46.3% considered the measurement guidance deficient compared to 34.1% of the EU companies.

Some respondents argued that the requirements were too complex and others that they were conceptually impaired. Several of the respondents criticised the method stated in the DP and presented their own solution as demonstrated in CL 282.

The initial measurement of the lessee’s obligation to pay rentals should be done at weighted average borrowing cost of the enterprise during the period (general borrowing rate). Normally, the general borrowing rate would be the representative of incremental borrowing rate of the enterprise and would obviate the need of separate computation for incremental borrowing rate.

Ascertaining incremental borrowing rate is difficult in practice and rate is determined by negotiations and cannot be predicted unless the deal is done. Alternatively, the actual incremental borrowing rate for the period in which the lease transaction is entered can be prescribed. This will obviate the need for any guess work and will be realistic based on the borrowings made in the normal course of the business during that period.

Undoubtedly, the methods for measurement proposed are difficult but, as the next table demonstrates complexity, although significant, was only considered an issue by the minority of respondents in both groups.

Table 3
Requirements are too complex

<table>
<thead>
<tr>
<th></th>
<th>EU</th>
<th>US</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>No.</td>
<td>%</td>
<td>No.</td>
</tr>
<tr>
<td>No</td>
<td>94</td>
<td>71.2</td>
<td>54</td>
</tr>
<tr>
<td>Yes</td>
<td>38</td>
<td>28.8</td>
<td>28</td>
</tr>
</tbody>
</table>

The theme of the complexity of the requirements was a general statement on the entire document and did not always refer to any one particular section such as the measurement guidance. Although the majority in both groups decided that the regulations are not too complex, a higher proportion of the total in the US of 34.1% consider that they are compared to 28.8% of EU companies.

One trend of the convergence project has been the issue of standards that are more principles based than rules based. This raises the speculation that the US respondents found the absence of the customary ‘bright line rules’ added to the complexity. This is only a hypothesis and it requires elaboration and further research but the absence of clear rules may well raise uncertainties in the minds of some users.

A main thrust of the Discussion Paper was to improve the information given to users. Table 4 demonstrates that 73.3% of all respondents believed that useful information would not be generated. Table 4 provides an analysis of the two groups.
Interestingly, it is the majority of respondents in the EU group that believes useful information will not be generated. One could suppose that there is a belief that the IASB’s principles based approach captures the nature of transactions and the relevant information is generated. Given the criticisms of practices by some US companies in side stepping the rules this may explain their slightly greater opinion (40.2%) on the value of the information that would be disclosed.

Some unease was expressed on the ability or willingness of recipients of financial information on leases to make use of the information. This theme of complexity was sometimes paired with the theme of useful information will not be generated, although the latter was frequently quoted without reference to complexity.

Exposure Draft 2

In August 2010, the FASB, jointly with the IASB, published an Exposure Draft *Leases*. The Exposure Draft was open for comment until 15 December 2010. Given our experiences with the first stage of the research and the changes made in the Exposure Draft, we decided to amend our research strategy. We decided to concentrate on UK and US companies. All the comment letters from these groups were analysed. This gave a sample size of 137. In Table 5 we show those who disagreed with or accepted the Exposure Draft. The disagreement could be either with the concept or with the proposed standard.

Exposure Draft 2

### Table 4

**Useful information will be generated**

<table>
<thead>
<tr>
<th></th>
<th>EU</th>
<th>US</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>No</td>
<td>%</td>
<td>No.</td>
</tr>
<tr>
<td>No</td>
<td>108</td>
<td>81.8</td>
<td>49</td>
</tr>
<tr>
<td>Yes</td>
<td>24</td>
<td>18.2</td>
<td>33</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th>EU</th>
<th>US</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>132</td>
<td>82</td>
<td>214</td>
</tr>
</tbody>
</table>

Only 22.6% of respondents accepted the proposals in Exposure Draft 2. For the standard setters this poses a challenge. After years of discussion, the issue of a Discussion Paper and two Exposure Drafts, only the minority of companies (22.6%) agree with the proposals in ED 2. We would emphasise that we are only considering the opinions of the preparers of information and not the users.

The above table demonstrates, at least for companies, that the US respondents overwhelmingly reject either the concept or the proposed standard with 89.9% expressing disagreement compared to 44.7% for UK respondents. Of course, in the minds of the respondents, the concept and the standard may be inextricably linked. Assuming there is a distinction, it could be argued that if there is disagreement with the concept then it would be impossible for standard setters to make any progress.

However, if the concept is accepted but the proposed standard is rejected, it may be possible to produce a standard that is acceptable. In table 6, we break down the 106 responses that disagreed with the ED proposals into the two categories of concept and standard. We accept that such an analysis requires an interpretative approach, but the respondents usually made it abundantly clear where their concerns lay.
In Table 6, separate the responses of the 106 companies disagreeing with either the concept or standard into those disagreeing with the concept and those accepting the concept but disagreeing with the standard. We acknowledge that our methodology has edged into an interpretive phase, but we consider the results reflect the opinions at the time and subsequent events.

Table 6
Disagreement with concept/standard

<table>
<thead>
<tr>
<th>Category</th>
<th>UK</th>
<th>%</th>
<th>US</th>
<th>%</th>
<th>Total</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Disagrees with concept</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>No</td>
<td>5</td>
<td>29.4</td>
<td>No</td>
<td>26</td>
<td>31</td>
<td>29.2</td>
</tr>
<tr>
<td>Disagrees with standard</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>No</td>
<td>12</td>
<td>70.6</td>
<td>No</td>
<td>63</td>
<td>75</td>
<td>70.8</td>
</tr>
<tr>
<td>Total</td>
<td>17</td>
<td>100</td>
<td>89</td>
<td>100</td>
<td>106</td>
<td>100</td>
</tr>
</tbody>
</table>

The responses from the UK and the US are very close. Possibly, and more importantly such results may have given the standard setters some enthusiasm to continue to work on the standard. The fact that the two Boards finally set their own standards possibly reflects the results in Table 5.

Conclusions

The search for a new international standard for leases has proved a tortuous road. The analysis of the Comment Letters on the Discussion Paper and Exposure Draft 2 demonstrate a considerable resistance to the proposed changes, particularly by US companies.

Not noted in the above discussions is the concern expressed by some respondents on the apparent lack of agreement between the IASB and the FASB on some key issues. This was evident in CL 229 that discussed the measurement guidance and the apparent differences in the approaches of the two boards.

In general, the boards favour different approaches to the measurement of the lease term. We believe that the new standard must reflect a consensus of opinion and respectfully request that the boards reconsider the use of the probability threshold approach.

It was considered that until these uncertainties were resolved the leasing project should not continue. Additionally, some respondents were of the opinion that the project should not continue until the requirements of lessors were also included.

The IASB has now issued IFRS 16 and presumably has judged that there was sufficient acceptance of change to introduce the standard. The FASB’s new lease accounting standard, ASU 2016-02, Leases (Topic 842), was issued on February 25, 2016. There are differences in the standard, but one could suggest that the inability of the two Boards to devise a converged standard was one contributory factor to the demise of the convergence project.
References


Political Economy of IMF Lending in East Asian Crisis

Partha Ray, Indian Institute of Management Calcutta, India

Abstract

The story of East Asian Crisis during 1998-1999 is well known. Of the eight East Asian countries comprising Hong Kong, Indonesia, Malaysia, the Philippines, Singapore, South Korea, Taiwan and Thailand, at least four countries (viz., Thailand, Korea, Indonesia, and Malaysia) which was largely seen as the successful illustrations of the "east Asian miracle' were hit hard by the crisis while Taiwan, Hong Kong and Singapore were more mildly hit. Many of these countries witnessed massive capital outflows and ultimately faced a massive macroeconomic crisis. Faced with such a sudden and massive crises, many of these countries had little option but to approach the International Monetary Fund (IMF) for their rescue. In particular, three countries, viz., Thailand, South Korea and Indonesia have taken recourse to IMF supported financial assistance. The purpose of this paper is to look into the broad contours of the IMF programs and the conditionalities in these countries. Tracing the macroeconomic conditions of these countries, and some of the relevant commentaries, the paper would argue that the IMF essentially missed the context and genesis of crises in these countries. In particular, the IMF’s obsession with (a) fiscal rectitude and (b) opening up of capital account could have exacerbated the extent of crisis in these countries. The paper in conclusion gives a political economic account of subsequent alternations of IMF orthodoxy of the program conditionality.
Teaching Negotiations to EFL Students – The Role of Teaching Clear Communication

Piotr Jednaszewski, NB Advisory Ltd. Adviser to the University of St Andrews, Scotland

Abstract
Clear communication in negotiations is one of the key elements to achieving win-win solutions. Teaching and developing students’ communicative ability also means being aware that we work with individuals who differ and thus produce different outcomes, even when working on the same cases. Making students aware of their differences in perceiving the same problem helps them to understand other people, with whom they will be negotiating in the future. There are many examples from the business world in which people have spoken in the same language, but where failures in communication led to misunderstandings and breakdowns. One such example is presented in this paper. The technique known as ‘confirming and clarifying’ helps to build good rapport, mutual understanding and confidence. This technique can be also practised out of the classroom. The more it is practised the more naturally it can be used during negotiations. Teaching communication in negotiations also means showing the importance of congruity in our everyday communication. The same words can have a different meaning not only in different contexts, but also when heard by different people with different expectations. This paper provides examples to illustrate that the interpretation and the understanding of the listener is where the real impact of communication should lie. The experiment suggested in this paper aims to highlight the importance of nonverbal communication and the role of body language is also mentioned as it constitutes 55% of our communication. Finally, the work is concluded with eight basic rules of communication as a working tool for teachers and their students.

Making Students aware of their communication
We can divide people into two main groups: those who are easy to talk with and those who are much less approachable. The same refers to students we teach. There is one group of students who are keen on participating in any class activates and the other group who need a lot of encouragement. However, being a better or worse speaker depends not only on your students’ command of English, character, the culture they come from, or their social status, but also on their personal ability and determination to train and practise certain techniques which can enable them firstly to be more persuasive, convincing and inspiring and yet, secondly, to be perceived as respectful listeners whose communication is concise and coherent. Forister (2015) talks about presentations given by professionals and states that: Good speakers retain some spontaneity and emotion in their voices, and they talk to the audience.¹

The first step on the road of your students’ development is to make them aware of how people communicate both in their native and in the foreign language. The first exercise which I practice with my students of negotiations is to give them the following task: “Think of yourself - how many times have you spoken to someone, only to find out later that they have understood quite the opposite of what you were trying to say?” The group discussion leads to the conclusion that this problem exists regardless of the language we use. Alternatively, students come to the conclusion that they may have thought they were following someone’s instructions, only to find that someone wanted something completely different to the other person. Most people have a tendency to blame themselves in such situations, however, the real problem is in the nature of conversation. We have a natural tendency to think that our perception of a problem is akin to that of other people. Jezek (2015), shows how to improve tennis performance, based not only on the technical skills of the players but also the thinking

process which influences the game. A similar situation is present in negotiations. The thinking process of students influences their communication. Their communication influences the way they negotiate. If we are able to improve our students’ communication skills, then their negotiation skills will also develop.

To illustrate the problem with communication, here is one of many examples from the business world. A gas company operating in Poland was in the process of introducing a quality process utilised by their parent company in Germany in order to introduce efficiencies. Certain elements of the process had to be discussed and negotiated between the two sides. The managers met at the plant in Poland and discussed all the technical issues regarding transport, waste, and technical operations, such as filling up the gas bottles etc. Present at the meeting were the chairmen of both sides, their technical managers, quality controllers, chief engineers and secretaries. Everything was in place to ensure that the processes and procedures were going to be clear and transparent. Finally, after many days of talks, discussions and local visits to the plant, it seemed that they were ready to successfully implement the process. It is important to mention here that English was used as the language of communication and every participant was reasonably fluent. The people responsible for taking notes did their jobs well, and the German that in spite of what seemed to be a common understanding and transparency of the issues, the managers from Poland and from Germany had totally different perceptions of the planned processes and procedures. The Poles changed things that the Germans thought were fine, and did not change what the Germans felt were major problems. The question is “WHY?”

Why is it that we teach people to communicate and negotiate in English and then our students who hold management positions feel that they have an agreement and yet have totally different perceptions of what they have discussed? Teaching Negotiation to EFL students means first of all teaching them to communicate well and use ‘confirming and clarifying’.

**Confirming and Clarifying**

Confirming and clarifying are the verbal techniques that improve our listening skills and help us get a better understanding of the information which is being transmitted. Students who are able to use this technique are more successful in their everyday communication and further work career.

During my classes I ask my students to do a small experiment. Two students are asked to describe the same object - for instance a chair. Then I show to the group that the provided two descriptions differ from one other. Then I ask them if they asked an artist and to draw the chair according to the descriptions, what the result would be. This way the group realizes that the result would be two completely different drawings of different chairs. Following the example with chairs students are made aware that the same thing happens at any situation when different people talk about the same problem but have different perceptions of it. At the corporate level, especially when we bring in the added complication of multicultural negotiations, such situations are far more likely to happen. Thus, coming back to the case of the gas company, the Poles paid attention to what they felt were big issues and the Germans looked at it from their angle. Both sides had discussed the situation, but registered the information according to their own natural bias.

The problem is how to teach students to avoid this ambiguity. In the above scenario there were not enough questions to confirm common understanding. We should equip students with tools and procedures. Tools are represented by the language they use. Procedures are the strategies they learn during the negotiation programme. For instance, saying: “If I understand you well we agreed on the following…” is a great tool to clarify what has been said. Finally when everything has been agreed it should be written down and confirmed by both parties. It does not necessarily need to be a long document. It could be a graph, or a few points which make both sides look and think in the same direction. I make my students aware of these two qualities, these being tools and procedures, in negotiations. As regards the tools there are many different phrases students can use to make sure that they understand the other person well. For example:

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3 F Atkinson, *Customer Care*, page: 21, bookboon.com
If I follow you well, you are saying that...
Let me repeat what you have just said...
To make things clear and avoid any ambiguities let me repeat what we agreed on...
I see what you mean. That seems fine. Let me run through it again to make sure that we are all pointing in the same direction...

All of these phrases might seem to be trivial small talk but if we are talking about preparing our students to negotiate investments or major purchases, then they may just ensure their security.

They also show that the person is a respectful listener. He or she values the opinion of the other side and pays close, personal attention to detail in order to get things just right, as expected by the other side.

For instance, people preparing to hold a public discussion have to learn how to listen and speak respectfully to each other. As Roberts (2004) says: A respectful listener is someone who listens and responds to the person who is speaking with full attention rather than simply waiting for his or her turn to speak⁴.

This is why, we should ask students to practise using these phrases when they talk to people, even in their native language. The more natural they are, the easier they will slip into their negotiations. By the time complex talks arrive, your students do not want to be experimenting with language!

**Congruity in everyday talks and negotiations**

We negotiate every day, whether we are negotiating the best deal for a car or a house, arranging a time to have a coffee with friends, or even negotiating with our spouses where we are going to spend our holidays. And what about our students? They have to negotiate as well and become aware of this process in their everyday communication.

While negotiating, we face the whole spectrum of communication. It is not unreasonable to say that our everyday communications can be considered as negotiations. We communicate to achieve different personal and business goals. The same with our students. Regardless of their professional background they have to communicate and negotiate with their friends, colleagues or business partners. If we make them aware of this fact, then they will start observing themselves, the way they communicate and how people get their message. When students become aware to the way they communicate in their everyday life then they are prepared to the following question:

“How to improve the context of communication in their academic and professional life.” Everyone must have noticed that there are people who speak, but their words are not congruent with their body language and tone of voice. In other words, they say something that seems to have a different meaning to the words that they use. What about us as teachers? What about your students? Have you and have they thought about the way you communicate?

As you are aware we need to give more thought to the outcome we want from our communication. The same words in different contexts have different meanings and I guess this is very clear to most of the teachers but not to every student. As Cohen (2015) says: *It is the context of the objective situation that gives defined meaning to our words...*⁵ Similarly a change in environment may result in a different meaning.

Here, I present some examples, which I have discussed with my students.

For instance, the word “quite” can have a positive and negative collocation. You can hear: “It is really a quite excellent project” and this remark can be very encouraging. However, someone may also say: “it sounds quite interesting” meaning that he/she respects what you are saying, and does not want to belittle your idea, but might not be interested in following it up.

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Another example based on negotiation cases is the understanding of the word ‘concession’. The dictionary definition is clear enough, but the concept of what can be given up to end a disagreement is less clear. Some people may understand this as lowering their profit margins, while others in the same situation may direct themselves more towards agreeing to extend the range of services, sharing future profits or some other solution which is perceived as giving up something for the benefit of the other side from their point of view.

Concessions should strengthen good cooperation and appreciation. However, some less visionary, or shortsighted negotiators do not appreciate the role of concessions in the negotiation process and view concessions made by opponents as a sign of weakness.\(^6\)

In talks between departmental managers of a company and the board, concessions can be understood differently by both sides. For the managers it could be higher salaries and happier staff, while for the board they could be seen as an undesirable cost.

Money itself can be perceived differently when presented in different ways. Saying that the price of a product has doubled sounds much more dramatic than saying that it has increased from 1p to 2p, or gone up by a penny.

Kirkwood (2012) says: \textit{words create pictures and pictures lead to destiny}. This leads us to the situation that the way we communicate influences the outcome of our expectations.\(^7\)

Skytt (2012) says that our world is constituted by words. These words carry the energy to empower us or weaken our actions. He says that \textit{our words create pictures in our minds.}\(^8\) By working on a couple of examples followed by class discussion we teach students to remember that words create pictures and people see these pictures through the filter of their own experience and preconceptions, which again can be influenced by factors like educational background or social status. Developing students’ ability to understand the context and surroundings is important when you want your students to know how people receive and understand their message.

This leads us to one of the most important rules of communication:

It is as important what you say as how you say it as well as how it is understood by the listener.

\textit{The basic rule of communication.}

What someone receives, hears and understands is more important than what the speaker thinks he or she has said.

For example, if the boss says to an employee:

‘I would like to give you a pay rise.’

The enthusiastic employee could interpret this as ‘I am going to give you a pay rise’ but the boss may be thinking ‘I would like to give you a pay rise, but I can’t afford it’

The interpretation and the understanding of the listener is where the real impact of communication should lie. This is why in order to teach our students to get the most out of their communication they should think about and understand the whole spectrum of communication in which they find themselves, not just the words they use.

What your students say and how they listen constitutes their communication. Williams (2012) talks about the ability of Emphatic Listening. This type of listening means that you are able to understand the speaker’s perspective. It also means that you are able to put aside your own attitudes and look at things through someone else’s eyes.\(^9\) If we can teach our students not only to look at the negotiation process from their perspective but also take an effort to look from the perspective of their counterparts, they will definitely become more successful not only in their business negotiations, but in other aspects of their lives.


There is one more aspect of communication which is sometimes neglected, especially when we talk about teaching foreign languages. Research shows that communication consists of three elements: words, tone of voice and body language. Mehrabian (1971) created the 7-38-55 rule, which states that our communication consists of:

- 7% words
- 38% tone of voice
- 55% body language (including facial expressions).

Face to face communication gives space for the whole spectrum of communication, as presented above. It has also been reported that the face to face communication skills have decreased as a result of e-mail use.

If that is hard for you to believe, you can do another small experiment. Turn off the volume of your television and watch a film. You will see that by watching the gestures and pictures you will be able to follow the plot. This is 55% of your communication. Can you imagine now how much you can influence communication by paying attention to your body language? The same refers to your students. When teaching them communication you can show them a film with the volume off, and then discuss what they were able to understand by watching the moving pictures. It is a great activity not only for having a class discussion but also realizing that the body language and the surroundings contribute to the message we produce.

People take much more notice of your body language than the actual words that you use.

You can ask your students the following question:

Have you ever spoken to someone, only to find out later that they have understood quite the opposite of what you were trying to say?

When body language is not congruent with the words people use, or rather body language is not congruent with the emotional tone attached to the message then the words pass off a different message to that of the body.

Therefore, if you really want your students’ negotiations - their language of communication - to be influential, you need to make them aware of giving great consideration to the tone of voice, posture, and gestures that they use.

For instance, you can often observe decisive people pointing or use chopping gestures.

And what about facial expressions?

Physiology represents 55% of our communication, if we get that right, we can improve by further 45%.

I usually ask my students the following questions to make them more aware of their body language:

Can you sign a contract with a company you have never met?

Can you do business with people you have never got to know?

Their answer can be yes, if they know their environment, company, or brand that a company represents. In other words, people can feel secure and sure that they generally know who they are talking to, but in fact they do business with people not companies. We base every contract on trust and relationships, not on a piece of paper.

Trust and understanding are the key values we build up from the very first meeting. This is why the body language we use is so important.

There are many rules books and films about the body language but there are 8 basic rules common in western culture that can be followed. I have discussed and practised the basic communication rules

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12 F Atkinson, Customer Care, page: 21, bookboon.com
presented below with my students. They seem obvious to many, but when students are observed by their peers during class negotiations exercises, it is often the case that some of these rules are not remembered or used. This is why students should be encouraged to practice the rules in negotiations and have feedback on their performance.

8 Basic Communication Rules

1. Use the space around you. Stand or sit straight. If you make yourself small by bending your shoulders, you display less confidence. Show that you are comfortable with the space around you.\(^\text{13}\)

2. Hold your head up. This demonstrates that you are confident and are not hiding anything.\(^\text{14}\) It also encourages you to make eye contact with the other person.

3. Stand symmetrically. Do not lean or seem imbalanced. Being square on two feet shows that you are a confident, balanced person.\(^\text{15}\)

4. Move with certainty. Neither rush, nor seem reluctant. Show that you know which direction to take and that you are going there at your own speed.

5. Keep your hands by your side, unless you are giving confident hand gestures.\(^\text{16}\) Do not clasp your hands, fold your arms, play with your hair or in any other way not seem to be in control of your hands.

6. Control your movement. Do not adjust your glasses or play with your keys in your pocket – in fact, absolutely do not put your hand in your pockets.

7. Use words and movements in harmony. Good news should come with a smile and a positive tone of voice. Serious points require eye contact and a neutral face. Confusing language and tone or body language confuses the listener.

8. Be natural. People can sense if you are playing games. The more natural and respectful you are the better.


The Key Attributes of Inquiry-based Learning: Towards Effectiveness in South African Schools

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Abstract
A common thread in contemporary research on school effectiveness refers, inter alia, to new and evolving strategies to promote teaching and learning in schools. One of the more popular and recent strategies in this regard is that of ‘inquiry-based’ learning. Pedagogy world-wide is slowly but surely shifting from teacher and textbook dissemination of facts and information to learner-centred construction of knowledge and learning. The use of inquiry as a tool to strengthen learning in schools and improve school effectiveness has been documented and discussed extensively in the educational research literature, but very little has been written on these concepts and their link locally. This paper, based on a descriptive review of the literature, focuses on the concepts of inquiry-based learning and school effectiveness in South African schools. It raises issues that South African schools are facing as they engaged in inquiry-based learning strategies. It is evident from this research that there are key factors that promote the rise of inquiry-based learning as a potentially useful and meaningful way to improve learning among school students (learners) and consequently school effectiveness.

Keywords: Attributes; Effectiveness; Inquiry-based; Learning; Schools; South Africa.

Introduction
The use of inquiry as a tool to strengthen teaching and learning in schools has been discussed by, among others, Rowland (2000), Brew (2001; 2003), Badley (2002), Kivinen and Ristela (2002), Healey (2005), Pauli (2009), Fielding (2012), Jedlickova (2014), Obispo (2014), Ertmer (2015) and May (2016). In addition, the notion that teaching and learning should occur in communities of inquiry in which teachers and learners (as students are referred to in the South African context) are co-learners has been suggested by many researchers (Brew, 2003; Le Heron, Baker, & McEwan, 2006; Jedlickova, 2014; Ertmer, 2015; May, 2016).

Inquiry-based learning (IBL) not only enhances the involvement of the learner in the teaching and learning processes, but also implies the desire or perceived need to know more from the side of the learner. IBL involves, inter alia, the pursuit of knowledge via open-ended questions and is driven by questions generated by the learners themselves (Botha, 2016). During the IBL process, “learners continuously learn to ask researchable questions and pursue them through open-ended investigations” (Ertmer, 2015, p. 17). Inquiry via IBL thus involves a complex thinking process where the learner attempts to convert the information presented by the teacher into useful and applicable knowledge. The learner’s understanding is often demonstrated through presenting a series of questions that have a “framework, a context and a focus” (Lam, 2014, p. 37). These series of questions often help the learner develop an understanding of the key topic, allowing him or her to synthesise new knowledge from this understanding, therefore “internalising” the knowledge (Spronken-Smith, 2007, p. 62).

IBL is thus a strategy and delivery system that recognises the need to involve the learner thus facilitating understanding. In such an environment, learners often use a wide range of resources to collaborate with others to solve authentic problems by thinking critically, actively create content and to communicate with a wide audience (Botha, 2016; May, 2016).

Unfortunately, our traditional educational system has worked in a way that discourages the natural process of learning via inquiry (Marishane, & Botha, 2011; 2014). Learners become less prone to ask questions during the traditional rote-learning process but instead to listen and repeat the expected answers (Botha, 2016). Some of the discouragement of our natural inquiry process may come from a lack of understanding about the deeper nature of IBL. There is even a tendency among some authors such as Ertmer (2015, p. 13) to view it as so-called "fluff-learning".
Effective inquiry is more than just asking questions. A complex process is involved when individuals attempt to convert information and data into useful knowledge. Useful application of inquiry learning involves several factors including a context for questions; a framework for questions; a focus for questions as well as different levels of questions (Jansen, 2011; Ertmer, 2015; May, 2016).

The memorising of facts and information is not the most important skill in today’s world (Botha, 2011). Facts change, and information is readily available; what’s needed is an understanding of how to get and make sense of the mass of data which learners are confronted with daily. Teachers must understand that schools need to go beyond data and information accumulation and move toward the generation of useful and applicable knowledge; a process supported by inquiry learning. “In the past, our country’s success depended on our supply of natural resources. Today, it depends upon a workforce that ‘works smarter’ ” (Marishane, & Botha, 2011, p. 87).

Through the process of inquiry, individuals construct much of their understanding of the natural and human-designed worlds. Inquiry implies, inter alia, the “need-or-want-to-know” (Ertmer, 2015, p. 36) premise. Inquiry is not so much seeking the right answer, because often there is none, but rather seeking appropriate resolutions to questions and issues. For teachers, inquiry implies emphasis on the development of inquiry skills and the nurturing of inquiring attitudes, the so-called ‘Habits-of-Mind’ (Costa, & Kellick, 2000) that will enable individuals to continue the quest for knowledge throughout life (Ertmer, 2015; Botha, 2016).

Content of disciplines is very important, but as a means to an end, not as an end in itself. The knowledge-base for disciplines is constantly expanding and changing. No one can ever learn everything, but everyone can better develop their skills and nurture the inquiring attitudes necessary to continue the generation and examination of knowledge throughout their lives (Colburn, 2015). For modern education, the skills and the ability to continue learning should be the most important outcomes (Jansen, 2011; May, 2016).

The main aim of this study is therefore to analyze some of the key attributes of inquiry-based learning to promote effectiveness in South African schools. The introduction above now leads to the following statement of the problem of the paper which can be phrased as a research question: **What are the main attributes of inquiry-based learning and how can these attributes contribute to school effectiveness in South African schools?**

The following four sub-questions were developed to provide answers to the main research question:

- What is inquiry and what is enquiry-based learning and its’ components?
- What entails school effectiveness?
- What are some of the key attributes of IBL?
- How can these attributes improve school effectiveness?

**Methods**

This paper, based on a descriptive review of the literature, focuses on inquiry-based learning and effectiveness in South African schools. The review was done according to the four sub-questions phrased above.

**Discussion**

**The Concepts and Components of Inquiry and Inquiry-Based Learning**

In its most simplistic form, the concept of `enquiry` can be described as a quest for information; an official effort to collect and examine information about something; or the act of asking questions in order to gather or collect information (Colburn, 2015). Perhaps the most ambiguous thing about inquiry lies in simply defining the term. Historically, discussions of inquiry generally fall within two broad classes; i.e. the dichotomy between inquiry as describing what scientists do, on the one hand, and inquiry as part of the teaching and learning process, on the other hand (May, 2016).

This paper focuses on the latter, namely inquiry as a teaching and learning technique that involves the creation of a classroom where learners are engaged in (essentially) open-ended and learner-centred hands-on activities. In short, during inquiry learners investigate natural phenomena, using their
background knowledge and experiences. This process may include posing questions, solving problems and creating answers or tentative generalizations (Grotzer, 2010; Botha, 2016). But how can the concept of ‘enquiry’ be defined?

Whitcomb (2010, p. 74) defines inquiry as "the action or the seeking for truth, knowledge, or information concerning something; search, research investigation, examination; a course of inquiry; an investigation; the action of asking or questioning”. Educational organisations, in turn, explain inquiry as it relates to the processes of teaching and learning. In this regard, Grotzer (2010, p. 7) describes inquiry as "the learners desire to look deeply into a question or idea that interests him or her", while Jansen (2011, p. 19) describes it as a "stance toward learning in which the learners themselves are engaged in asking questions and finding answers, not simply accumulating facts (presented by someone else) that have no relation to previous learning or new understanding". With these definitions in mind and keeping to the focus of this paper, inquiry can be defined as seeking for truth, information or knowledge or the seeking of information by questioning in the teaching and learning environment.

Inquiry-based learning, or IBL, on the other hand, is an approach to teaching and learning that places learners’ questions, ideas and observations at the centre of the learning experience. Educators as teachers play an active role throughout the process by establishing a culture where ideas are respectfully challenged, tested, redefined and viewed as improvable, moving learners from a position of wondering, to a position of enacted understanding and further questioning (Obispo, 2014; May, 2016).

Underlying this IBL approach is the idea that teachers and learners share responsibility for learning. For the learners, the process often involves open-ended investigations into a question or a problem, requiring them to engage in evidence-based reasoning and creative problem-solving, while for teachers, the process is about being responsive to learners’ learning needs and, most importantly, knowing when and how to introduce learners to ideas that will move themselves forward during the process of inquiry. Adhering to this approach of teaching and learning, teachers and learners co-author the learning experience by accepting mutual responsibility for planning, assessment of learning, the advancement of the individual as well as an understanding of personally meaningful content and ideas (Grotzer, 2010; Colburn, 2015).

According to Fielding (2012), authentic inquiry begins with questions and problems that learners want to find out more about. A common misconception is that educators must follow the learners’ lead and wait until the ‘perfect’ question emerges before proper inquiry can begin. With this in mind, Jedlickova (2014, p. 17) states that “students’ spontaneous questions, when they reflect genuine curiosity, can be a powerful place to start the IBL approach”.

According to Stevensen (2007) inquiry involves learners, inter alia, to tackle real-world questions, issues and controversies; develop questioning, research and communication skills; solve problems or creating solutions; collaborate within and beyond the classroom; develop deep understanding of content knowledge; and participate in the public creation and improvement of ideas and knowledge. With this in mind, Stevensen (2007) states that certain teaching practices may utilize a disposition of inquiry learning. In this regard, he mentioned the following:

- **Problem-based learning**: Learning that starts with an ill-structured problem.
- **Project-based learning**: Students create a demonstration of their understanding.
- **Design-based learning**: Learning through the design of a solution to a complex problem.

According to Stevensen (2007, p. 26), the “meaning of ‘knowing’ has shifted from being able to remember and repeat information to being able to find and use it”. As contrasted with more traditional forms of teaching and learning such as memorisation, inquiry emphasises the process of learning in order to develop deep understanding in learners, in addition to the intended acquisition of content knowledge and skills. Stevensen (2007, p. 32) adds that inquiry “draws upon a constructivist learning theory where understanding is built through the active development of conceptual mental frameworks by the learner”. This approach is according to Stevensen (2007, p. 32) supported and enhanced by a
broad research base which has identified three key implications for effective instructional practices, namely:

- **Learners come to the classroom with preconceptions about the world:** This means teaching practices must work with learners pre-existing understandings and make ‘learner thinking’ visible and central to the learning process.
- **Competence in an area of study requires factual knowledge organised around conceptual frameworks to facilitate knowledge retrieval and application:** Classroom activities should be designed to develop understanding through in-depth study of curriculum topics.
- **Meta-cognition (thinking about thinking) helps learners take control of their own learning:** Opportunities for learners to define learning goals and monitor their own understanding need to be embedded into classroom tasks.

For inquiry to be effective, it is necessary for significant intellectual investment on the part of teachers to design learning tasks that are connected to the disciplines, to their learners’ lives, and to the world, while remaining focused toward clear and achievable learning targets. It requires that teachers see themselves as learners and researchers of both the subjects they teach and their professional practice as a whole. According to Stevensen (2007, p. 37) “Classroom tasks that are worthy of students time and attention, relevant, connected to the world and organized around the ‘big ideas’ of a subject can develop understanding, intellectual interest and engagement with students”.

In addition, inquiry does not necessarily follow a logical or neat process. And, even more important, inquiry occurs not at the end but at the beginning of the study, allowing learners to construct the content knowledge necessary to understand the concepts of enquiry and to make connections between the various concepts. Ideally, the process begins “when the learner identifies a problem or notices something that intrigues, surprises, or stimulates a question; something that is new, or something that may not make sense in relationship to the learner's previous experience or current understanding” (Jedlickova, 2014, p. 27). In such an instructional method such as IBL, the starting premise has been that the learner’s ability is not determined by the ‘level’ of knowledge at which we think he or she is at, but on the potential to understand almost every key idea that is put to him or her (Ertner, 2013; May, 2016).

**The Concept of School Effectiveness**

On the other hand, the study of school effectiveness has, according to Creemers, Sun and De Jong (2007), two distinct aims; firstly, to identify factors that are characteristic of effective schools, and secondly, to identify differences between education outcomes in these schools, despite the fact if a school uses the IBL approach or not. One of the touchstones for effective schools is therefore the impact on learners' education outcomes. In this regard effective IBL can improve learners’ outcomes (Botha, 2016).

Researchers into school effectiveness, however, continuously aim to clarify the dilemma with regard to learners' education outcomes (Petty, & Green, 2007; Creemers et al., 2007; Botha, & Makoelle, 2012). The choice and use of outcome measures have been open to debate in many areas of education research. A long-standing problem in this regard has been to find ways to measure learner progress or achievement that identify the school's contribution separately from other factors such as learner ability, background and the school's socio-economic environment. Parallel with this has been a call for schools to be more accountable, which in many cases leads to school effectiveness being judged on academic results, while other contributing factors are ignored.

As a result, academic outcomes, usually measured by examination results, have continued to dominate, while other outcomes measures as contextual factors have been neglected or used to a lesser extent. Creemers et al. (2007, p. 187) stated in this regard: "Examination results are a measure of academic learning but do not give the whole picture with regard to the effectiveness of a school academically, and give little information about other outcomes”.

Apart from the fact that researchers are not always sure what output or category of school effectiveness to measure, the definition of school effectiveness may also vary from one person or source to the next. For the purpose of this study, the term ‘school effectiveness’ refers to the "ratio of
output to non-monetary inputs or processes” (Cheng, 2006, p. 36) and includes, among other things, the number of textbooks, classroom organisation, professional training of teachers, teaching strategies and learning arrangements.

Furthermore, we can distinguish between internal and external school effectiveness (Cheng, 2006). Internal school effectiveness can be regarded as the school’s technical effectiveness if its outputs are limited to what happens in or just after schooling (e.g. learning behaviour, acquired skills and changes in attitude), while external school effectiveness can be regarded as the positive impact of the school’s outputs on society or on individuals’ lives (e.g. social mobility, earning power and work productivity).

The assumption that there is a direct correlation between these two categories of school effectiveness (internal and external) is often problematic and misleading, since a school with a high degree of internal technical effectiveness may not necessarily have a high level of external societal effectiveness. In other words, effective teaching and learning in schools may not necessarily lead to high productivity if these skills are found to be outdated later in life. Ignorance of this complicated relationship and an overemphasis on one category of effectiveness over another is to be avoided (Cheng, 2006; Petty, & Green, 2007).

The reality, also, is that every school has to pursue multiple and contradictory goals because it is working within multiple environmental constraints and time frames. Because of its limited resources, it is very difficult for a school to maximize its effectiveness in order to achieve its goals. In the process of pursuing multiple goals, every school experiences different pressures from the environment, and therefore each school develops different priorities and goals. An effective school is different from an ineffective school in that it can respond to change by re-prioritising the goals it wishes to pursue (Creemers et al., 2007; Hallinger, 2008).

A school may not be able to maximise its effectiveness in terms of all criteria at the same time, but it will be able to create harmony among all criteria in the long run. Cheng (2006, p. 41), in this regard, has stated: "School effectiveness may be the extent to which a school can adapt to internal and external constraints and achieve its multiple goals in the long run". In other words, it is possible for the different categories of school effectiveness to be compatible with each other and eventually to work in harmony if schools can learn, adapt and develop.

It is clear from the discussion above that the definition and measurement of school effectiveness are complex issues. The question remains: what category of school effectiveness (what school inputs and outputs) should be measured, and how should school effectiveness be correctly defined? From an organisational perspective, there are many different contextual factors or indicators for the conceptualisation, formulation and measurement of school effectiveness. The following seven contextual factors form the basis of the approach to be discussed and are based on earlier research into the issue of school effectiveness (Nadler, & Tushman, 1983; Cameron, 1984; Caldwell, & Spinks, 1992; Hallinger, 2008; Cheng, 2006):

- **The Goal Factor**: This indicator assumes that there are clearly stated, quantifiable and accepted goals for measuring school effectiveness, and that a school is effective if it can accomplish its stated goals with given inputs. This indicator is widely used in schools for evaluation purposes, but its usefulness is limited because it depends on the quantifiable, which is often impossible to pin down in school contexts. Often during IBL the outcomes of education are much wider than results alone.

- **The External Resource Factor**: This indicator assumes that because scarce and valued resource inputs are needed for schools to be more effective, the acquisition of resources replaces goals as the primary criteria of effectiveness. An example of this indicator is financial support from outside the school.

- **The Internal Process Factor**: This indicator assumes that a school is effective if its’ internal functioning is effective. Internal school activities are often taken as criteria for school effectiveness. This indicator includes aspects such as leadership, communication channels, participation, adaptability and social interactions in the school.

- **The Satisfaction Factor**: This indicator defines an effective school as one in which all the stakeholders are at least minimally satisfied. It assumes, therefore, that satisfying the needs of
the principal, teachers, management team, school governing body, learners and the public is the school's main task. Satisfaction is, according to this view, therefore the basic indicator of effectiveness.

- **The Legitimacy Factor:** According to this indicator, a school is effective if it can survive undisputed and legitimize its marketing activities. This indicator is applicable, however, only if the school has had to strive for legitimacy in a competitive environment.

- **The Organisational Factor:** This indicator assumes that environmental changes and internal barriers to school functioning are inevitable and that a school is effective if it can learn how to make improvements and adaptations to its external and internal environments.

- **The Inadequate Factor:** This indicator assumes that it is easier for stakeholders to identify and agree on the criteria of school ineffectiveness than on the criteria of effectiveness. It is easier to identify strategies for improving school effectiveness by analyzing school ineffectiveness rather than by analyzing school effectiveness. This means that a school is effective if there is an absence of characteristics of ineffectiveness.

These seven ‘original’ contextual factors in the evaluation of school effectiveness, together with the two categories of school effectiveness earlier discussed (i.e. internal and external), can consequently be integrated with each other to provide a complete and consistent assessment approach to school effectiveness from seven different perspectives (Cheng, 2006). Before an attempted link can be proven between IBL and school effectiveness, the key attributes of IBL should firstly be discussed.

**The Key Attributes of IBL**

Human society and individuals within societies constantly generate and transmit knowledge. Experts, working at the boundary between the known and the unknown, also constantly add to the fund of knowledge. It is very important that knowledge be transmitted to all the members of society. This transmission takes place through structures like schools, families, and training courses. Certain attributes are necessary for both generating and effectively transmitting the fund of knowledge. The attributes that experts use to generate new knowledge are very similar to the qualities essential for the effective transmission of knowledge within the learners' environment. According to Jedlickova (2014, p 42) the key of effective IBL lies in experts who

- can see patterns and meanings not apparent to novices;
- have in-depth knowledge of their fields, structured so that it is most useful;
- have knowledge which is not just a set of facts; it is structured to be accessible, transferable, and applicable to a variety of situations; and
- can easily retrieve their knowledge and learn new information in their fields with little effort.

Given that IBL requires an active involvement from the learner and the promotion of understanding on key ideas, the author has broadly included three major requirements or attributes for successful and effective IBL to enable himself to determine the possible link between IBL and school effectiveness namely the

- need to involve the learner; and
- need to promote understanding from the learner.

**The need to effectively involve the learner in IBL.** According to Jedlickova (2014, p. 16) “A learner only wishes to be involved in the learning process when he or she is genuinely interested in the learning experience”. The basis for involving the learner therefore rests on the need to motivate and engage the learner in the key idea to be discussed. Whilst, in the ideal scenario, a curriculum could be designed and implemented to suit the learning interest of each individual, in practice, the teacher could attempt to align the interest of his/her learners in the classroom through the creative application of various teaching resources and the appropriate alignment of learning experiences. There are many ways to achieve this outcome. For illustration purposes, the author will describe a few methods cited by Obispo (2014, pp. 11-14) that have been shown to be highly successful in engaging the learner to find out more on the topic to be discussed, namely:

- Adopting thematic approaches to integrate various disciplines.
- Using authentic examples to illustrate the concept.
Initiating the lesson with an engaging demonstration.
Using interactive teaching materials.
Hands-on-activities.

The need to promote understanding from the learner during IBL. A learning journey cannot be restricted to the assimilation of techniques per se. It is therefore essential to ensure that learners be empowered with the understanding of the relevant concepts. They should therefore not only be challenged beyond knowledge of facts, but also with knowledge of ‘why’ and ‘how’ with proper reasoning, well-supported with appropriate evidence.

This could be explained by the so-called “Facets-of-Understanding” (FoU) model as proposed by Wiggins and McTighe (2011, p. 1). Any of these FoU concepts should promote understanding from the learner during the IBL process as each FoU concept is always accompanied by a display of more than one habit from the list of Habits-of-Mind (HoM). The HoM (Costa, & Kellick, 2000, p. 62) can broadly be defined as the characteristics of what an intelligent person may do when confronted with problems to which the solution may not be apparent:

- **Explanation**: Gaining deep and broad knowledge of theories to justify observable phenomena via HoM such as persisting, striving for accuracy and precision and applying past knowledge to new situations.
- **Interpretation**: Demonstrating ability to provide meaning from the data provided via HoM such as persisting, striving for accuracy and precision, managing impulsivity, listening to others with understanding and empathy.
- **Application**: Applying the knowledge of concepts discussed effectively in new situations and contexts. This includes HoM such as persisting, striving for accuracy and precision, thinking about our thinking (metacognition), questioning and thinking independently.
- **Perspective**: The ability to provide critical and insightful views on various issues pertaining to the key idea discussed. This includes HoM such as managing impulsivity, listening to others with understanding and empathy, thinking flexibly and questioning.
- **Empathy**: Demonstrating the ability to understand another person’s point of view, especially when discussing socio-ethical issues that surround the modern application of some of the concepts discussed. This includes HoM such as managing impulsivity, listening to others with understanding and empathy, thinking flexibly and gathering data.
- **Self-knowledge**: Demonstrating understanding of one’s ignorance in understanding, and how one’s personal experience and thought patterns could influence one’s understanding of matters. This includes HoM such as managing impulsivity, listening to others with understanding and empathy, thinking flexibly and metacognition.

How can these Attributes of IBL Improve School Effectiveness?

From the discussion above it is clear that school effectiveness in the South African context is still measured against academic results. If a new approach such as IBL can contribute to better outcomes via observable habits such as persisting, striving for accuracy and precision, applying past knowledge to new situations, thinking and communicating with clarity and precision, gathering data through all senses, taking responsible risks, learning continuously, while demonstrating ability to provide meaning from the data, it (IBL) can surely be used as a potentially useful and meaningful way to improve learning outcomes and consequently school effectiveness. The author believes and is very confident that the introduction of any new approach that will increase the learning experience of the learners will ultimately lead to better outcomes and improved school effectiveness.

Conclusion

The model of education typical of 20th century classrooms was effective for that era of human history, but the ‘knowledge society’ we now live in requires new thinking about what constitutes effective and engaging teaching and learning. Teachers are now faced with the challenge that former conceptions of knowledge, minds and learning no longer serve a world where what we know is less important than what we are able to do with knowledge in different contexts. The advantage of an inquiry-based approach to teaching and learning is its potential to increase intellectual engagement.
and foster deep understanding through the development of a hands-on, minds-on and ‘research-based disposition’ towards teaching and learning. Inquiry honours the complex, interconnected nature of knowledge construction, striving to provide opportunities for both teachers and learners to collaboratively build, test and reflect on their learning.
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The Center for Integrating Students with Physical Disabilities in Academia at the Wingate Academic College Israel

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Abstract

We at the Wingate Academic College are very proud of our new Center for Integrating Students with Physical Disabilities in Academia. The center was designed in consultation with experts in the field of disabilities accommodation and the National Insurance who provided funds for the establishment of the center.

Integrating people with disabilities into society is a human value that reflects society's understanding that it needs to care for all individuals as well as the understanding that each person can contribute to society in a different way (Ronen, 2007). This integration is accomplished by the mutual recognition that people with disabilities can contribute to society as well as society contributing to them (Reiter, 2007). Flavian (2010) states that people with special needs can be integrated into society but raises the question whether they can be part of the teaching profession.

In my lecture, I wish to describe the center, its activities, and present the case of one of our students, BezaNebeveh. Beza applied for acceptance to Wingate Academic College with the goal of becoming a certified physical education teacher. As Beza did not meet the entrance requirements for acceptance, he was referred to our special preparatory program for students wishing to study at the college. Beza, who is blind from birth, arrived in Israel with his mother as a young child from Ethiopia and attended a school for the blind but did not complete the matriculation exams necessary for acceptance to higher education.

Our goal was to prepare Beza for academic studies here at Wingate and to provide him with whatever assistance he required to meet that goal. In addition to the academic challenges, Beza and the college together needed to learn how to enable Beza to cope with physical classes and the facilities, which are not necessarily accessible to the blind.

To accomplish this we created a support network of teachers, students and counselors who accompanied Beza throughout the year. This was an inspiring process of mutual learning that culminated in Beza's successful completion of the preparatory program and acceptance to Wingate Academic College where he is currently a student. The experience withBeza laid the groundwork for establishing the center and strengthened our belief of the importance of integrating students with disabilities in Academia.
References


Quantum Leadership and Organizational Intelligence Relationship

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Abstract
The current research is a descriptive study which aims to determine the impact of quantum leadership behaviours of school principals on the organizational intelligence level according to the perceptions of teachers. The study is designed with correlational survey model. The target population of the study consists of 2219 teachers who teach at upper-secondary schools located in the province of Zonguldak and the districts of it in Turkey at the academic year 2015/2016. 600 teachers have been included in the sampling size. Two scales, “The Quantum Leadership Behaviours of School Principals” which is developed by Erçetin, Potas, Açıkalın, Turan and Bisaso (2017) and ‘Multi-Dimensional Organizational Intelligence’ which is developed in their previous studies (2001, 2004, 2007, 2009, 2010) and updated by Erçetin, Potas, and Açıkalın for this thesis in 2015 have been used in order to gather data. Necessary permits have been taken so as to use the scales. Since the construct validity was tested and proved hypothetically beforehand, a pre-testing was held with the participation of 200 teachers who were not included in the sampling. Regarding the data which were obtained confirmatory factor analysis (CFA) was conducted. The goodness of fit indexes generated by CFA verified the items of scales. The Cronbach’s Alpha reliability coefficients and item total correlations were calculated for each item and the total score of the scale. As a result, it was ensured that the scales and their sub dimensions were reliable and valid. In order to determine the perception of teachers about the quantum leadership behaviours of principals and the organizational intelligence level of their current schools, arithmetical mean and standard deviation were used. Parametric tests were used for normally distributed ones. Levene’s test was also used for the homogeneity. regression analysis, in which organizational intelligence level was taken as dependent variable, was used in order to determine the predictivity level of quantum leadership behaviours on organizational intelligence level. Non parametric methods were used for the items which are not distributed normally. Mann Whitney U was used to test the difference variable between two categories, Kruskal Wallis was used to test the difference of variable among more than two categories. According to the findings of the study, it is concluded that school principals mostly exhibit quantum leadership behaviours based on the perceptions of teachers’ perceptions. The perception of teachers about their current schools’ level of organizational intelligence level is high. Lastly, it has been concluded that quantum leadership behaviours of principals significantly affect the organizational intelligence level.

Keywords: Quantum Physics, Quantum Leadership, Leadership, Organizational Intelligence
Mens Rea of Offence in Polish Criminal Law

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Abstract

This paper examines the mental element of offence in Polish criminal law. The author begins by discussing the relation between the mental element of offence (mens rea) and fault (culpa), and by indicating the place of the mental element in the structure of offence. Then, she presents the forms of the mental element of offence and explores each of them. Under Polish criminal law, there are three forms of mens rea. The first consists in intent to commit a criminal offence. The second form is negligence. The last form is referred to as the mixed or combined mental element and concerns mainly intentional-negligent acts. These are intentional acts (i.e. committed with dolus directus or dolus eventualis) qualified by the consequence which occurred negligently. The third form also comprises negligent-negligent acts. In summary, the author evaluates the regulation of the mental element of offence in the current state of the law. The paper concludes by making the de lege ferenda demand of amending Article 9 § 2 of the Polish Penal Code. The part of this provision concerning the conduct element of offence (actus reus) and consisting in the failure to be careful in the manner required under the circumstances should be removed from the legal definition of negligence.

Key words: mens rea, dolus directus, dolus eventualis, mental element of offence, intention, negligence.

The issue of the mental element of offence (mens rea), which is also referred to as the subjective element of offence, is very complicated under Polish criminal law. Although the regulation of the mental element and fault (culpa) in the Polish Penal Code may seem to be clear, in the Polish doctrine there are significant differences in the interpretation of the provisions and understanding of fault. Many professors are of the view that the current penal code, i.e. the Statute of 6 June 1997, which entered into force on 8 September 1998, transparently separated the mental element of offence and fault. They think that the current penal code regulates fault on the basis of the so-called clear normative theory. Many professors also are the adherents of the so-called complex normative theory and still speak about intentional fault and negligent fault. In accordance with this theory the mental element is part of fault. In the opinion of the author of this paper, the first stance is right.

Prior to carrying out an analysis of the mental element of offence, the place of mens rea in the structure of offence should be indicated. An explanation of that will allow to show the mutual relation of the mental element and fault. In the Polish literature there are different views as to the structure of offence. When analyzing an offence, under the notion of ‘structure of offence’, some theorists write about protected interest, subject of offence, actus reus, and mens rea. The majority of academics, while writing about the structure of offence, describe elements like, for instance, fault. In the opinion of the author of this paper both stances are right and there is no contradiction between them. They are just different looks at criminal offence. It is possible to analyze the structure of offence by looking from different perspectives. However, to explain the relation of the mental element and fault, it should

1 L. Gardocki, Prawo karne, Warszawa 2013, p. 81.
4 See e.g. L. Gardocki, op. cit., p. 65.
be looked at offence in the way showing the fault. To the view of the author, the concept of the structure of offence according to which an offence is made up of five elements is the best. These elements are an act of a person, unlawfulness, threat by punishment, social harmfulness, and fault. In other words, an offence is a behaviour of a human being which is unlawful, prohibited under a punishment as a criminal offence, socially harmful in a degree higher than minimal, and culpable. It should be mentioned that the element referred to here as the threat by punishment (an act prohibited under a punishment) is in the Polish literature commonly called ‘punishability’8. Almost all criminal law specialists do so. In the opinion of the author of this paper, this is wrong. The author discussed this issue in another article9.

From the structure of offence highlighted above follows that fault is the last element in the structure of offence. It should be analyzed where in the structure of offence the mental element of offence is. In other words, it needs to be considered at which stage of research, whether or not an offence has been committed, the mental element is analyzed. To this aim, one should refer to the legal definition of a prohibited act. Article 115 § 1 of the Penal Code reads that a prohibited act is a behaviour having the features specified in a criminal law statute. Thus, the term ‘prohibited act’ embraces the first three elements contained in the structure of offence given above. ‘The features specified in a criminal law statute’ are the elements given in the description of a type of offence. The legal definition of a type of offence is made up of the objective elements (material elements, conduct elements, actus reus) and the subjective element (mental element, mens rea), and a punishment. In determining whether an accused committed an alleged offence, first the execution of the objective elements has to be proven, and then, the subjective element is to be proven. At this stage an issue of fault does not appear. The issue of fault appears later. After having proven that a defendant carried out by his behaviour the objective and subjective elements of an offence described in a criminal law statute, and thus committed an unlawful and prohibited act, it should be determined whether or not his behaviour was socially harmful. At the next and last stage, fault is to be determined. Ergo, the fault is an element of offence which is separate from the mental element. It can be stated – as it is sometimes done in the literature10 – that the mental element is a premise of fault (the most important premise of fault), if it is understood in that way that without prior proving of the mental element, the fault cannot be established.

Under Polish criminal law three forms of mens rea are distinguished. Mens rea may consist in intention or negligence, or mens rea may be combined (mixed). The Penal Code regulates mens rea in Article 9. Paragraph 1 of this Article concerns the first form of mens rea and reads: ‘A prohibited act is committed intentionally if the perpetrator has an intent to commit it, i.e. he wants to commit it or he is foreseeing the possibility of its commitment and agrees to that’. The negligence has been defined in Paragraph 2 in the following way: ‘A prohibited act is committed negligently if the perpetrator has no intent to commit it, however he commits it because of the failure to be careful in the manner required under the circumstances, although he foresaw or could have foreseen the possibility of its commitment’. Article 9 § 3 of the Penal Code concerns the mixed (combined) mens rea and reads: ‘The perpetrator is liable to more severe liability, which a statute makes dependent on a certain consequence of a prohibited act, if he foresaw or could have foreseen this consequence’. All the forms of mens rea will be subjected to an analysis below.

The form of the mental element specified in Article 9 § 1 of the Penal Code consists in intention. Intention consists in direct intent (dolus directus) or eventual intent (dolus eventualis). An intent of commitment of an offence consists in focusing the behaviour on gaining a desired aim and steering this behaviour11. Intent is made up of an intellectual aspect and a volitional aspect12. The intellectual aspect concerns the awareness of the perpetrator and the recognition of the external world by him. The

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volitional aspect determines a psychological relation of the perpetrator to the act committed by him.\textsuperscript{13} Intent is determined by an imagination of an aim (intellectual side) and by an aspiration founded on a motivation to achieve it (volitional side).\textsuperscript{14} A perpetrator acts with dolus directus if he wants to commit an offence. The definition of dolus directus raises no controversy among Polish academics.

Whereas the definition of dolus eventualis has been raising controversies for years. In accordance with the legal definition, dolus eventualis exists if the perpetrator does not want to commit an offence, but he foresees a possibility of commitment of that offence and he agrees to that. There are, thus, two constitutive elements of dolus eventualis. An interpretation of the second element raises controversies.

Many theories have been created in order to explain this element.\textsuperscript{15} In the opinion of the author of this paper, the stance is right that two following theories should be used in conjunction: the theory of probability and the theory of objective manifestation. According to the theory of probability, a perpetrator agrees to commit an offence if he makes a decision to carry out an act, although he is aware of the high probability of the occurrence of an offence.\textsuperscript{16} According to the theory of objective manifestation, a perpetrator does not agree to commit an offence if he, while seeking an aim, undertakes measures to prevent the occurrence of an offence.\textsuperscript{17} Thus, dolus eventualis appears when a perpetrator foresees a high probability of carrying out the elements of an offence and he does not do anything to minimize this probability. Dolus eventualis is also referred to as “result intent”.\textsuperscript{18} This name has functioned in the Polish criminal law doctrine for many years and is not casual. It can be said that a perpetrator is responsible for the commitment with dolus eventualis of an offence which resulted from his behaviour. However, it should not be meant as an objective responsibility. Here there is an offence which resulted from a behaviour of a perpetrator and this perpetrator foresaw the high probability of the occurrence of this offence and failed to undertake an appropriate action to prevent this occurrence. Another issue which should be emphasized is that the element of agreeing never exists in isolation, but it is always connected with the element of wanting. Every behaviour of a person always has an aim; a human being always aims at something while performing an act. Dolus eventualis never exists independently, but always next to dolus directus. This dolus directus does need to aim at the completion of a criminal offence, but it can be criminally irrelevant, i.e. it can be directed to achieve a lawful aim.

Mens rea of the majority of offences penalized in Polish criminal law consists in intent (dolus directus or dolus eventualis). To fulfil the mental element of a dolus offence (intentional offence) it is enough that a perpetrator acted with dolus eventualis and it is not necessary to prove in the proceedings that this perpetrator had a willingness to commit the perpetrated offence, i.e. that the perpetrator acted with dolus directus. However, a few dolus offences can be committed only with dolus directus and it is not possible to commit them with dolus eventualis. These are offences like rape, forgery, theft or fraud, to name a few. The requirement of direct intent results from the description of an offence in a statute. A few offences have in their description a special feature characterizing mens rea. These offences usually have in their legal description the feature “in order to/to the aim” (for example, fraud). Another feature indicating at dolus directus can be, for instance, a motive or an incentive. A motive is a psychological experience of intellectual nature prompting the perpetrator to commit an offence (for example, deceiving someone of his rights because of his religion – Article 194 of the Penal Code).\textsuperscript{20} An incentive is a psychological experience of emotional nature prompting the perpetrator to commit an offence (for example, a mercy killing – Article 150 of the Penal Code).\textsuperscript{21}

\textsuperscript{13} W. Wróbel, A. Zoll, Polskie prawo karne. Część ogólna, Kraków 2013, p. 209.
\textsuperscript{14} A. Zoll [in:] A. Zoll (ed.), Kodeks karny. Część ogólna..., op. cit., p. 110.
\textsuperscript{17} A. Zoll [in:] A. Zoll (ed.), Kodeks karny. Część ogólna..., op. cit., p. 116.
\textsuperscript{20} L. Gardocki, op. cit., p. 85.
\textsuperscript{21} L. Gardocki, op. cit., p. 85.
direct intent can be expressed in the legal description of an offence by a verb specifying the behaviour of a perpetrator (for example, subjecting another person to sexual intercourse as in the offence of rape penalized in Article 197 § 1 of the Penal Code). An additional feature of mens rea, indicating at dolus directus, can be also expressed by the wording ‘knowingly/with knowledge’ (for example, offences penalized in Article 161 and Article 238 of the Penal Code).

In the Polish criminal law literature, the offences characterized by an aim (‘in order to’), a motive or an incentive are called ‘directional offences’22. Directional offences make a subcategory of offences which may be committed only with dolus directus. In other words, directional offences constitute part of intentional offences. The term ‘directional offences’ emphasizes that a perpetrator acted with a specifically directed intent. This is best evident in offences characterized by an aim23. As for offences characterized by an aim, the term ‘aim-offences’ is used by some writers24. The so-called ‘aim-offences’ are a subcategory of directional offences. In the latest literature, a few academicians write that directional offences are committed with directional intent, which is a form of dolus directus25. This thesis is correct, however, in the opinion of the author of this paper, distinguishing that new form of intent is entirely redundant. The creation of a new form of intent leads to an excessive extension of the already expanded ‘terminological net’ concerning the mental element of offence. A better solution is to use the Latin term dolus directus coloratus. This term is deeply rooted in the Polish criminal law doctrine26. It is translated into Polish as ‘coloured direct intent’, it means - coloured by an aim, a motive or an incentive.

It is also entirely redundant to use the term of the so-called dolus quasi-eventualis. It means that a perpetrator, without certainty as for one of the features of the offence, wants the behaviour encompassed by the verb contained in the description of this offence (a perpetrator wants to carry out an act)27. The most often example given in the literature concerns the offence of sexual abuse of a minor (Article 200 § 1 of the Penal Code)28. In this example, a perpetrator is not sure whether or not the sexual partner is under the age of 15, but he does not exclude such a circumstance and agrees to it, and he wants to have sexual intercourse with her (the minor partner is usually a girl). Dolus quasi-eventualis is recognized as a form of dolus directus29. The term dolus quasi-eventualis is misleading because of its name. This dolus has no legal foundation in Article 9 of the Penal Code. There is also no need to refer to this construction. As for the case given above, different opinions are expressed in the literature. One opinion is that in the situation like that we deal with dolus eventualis since dolus directus requires full awareness of the perpetrator as for the statistic features of an offence (age of the victim is a statistic feature of offence)30. This opinion has been criticized as having no justification in Article 9 § 1 of the Penal Code, since as for dolus directus this provision does not require full awareness with regard to any feature of an offence and requires only that a perpetrator wants to commit an offence31. In the view of the author of this paper, another opinion is right. This opinion is predominant in the literature and says that the above-presented act is an offence committed with dolus directus since agreeing does not concern the essence of this offence but one of its features32. It is rightly underlined in the literature that if a perpetrator agrees to something he must be aware that it potentially comes into play33. As for the mental element of the perpetrator with respect to the age of the minor, it is a case of the so-called incomplete awareness (the perpetrator was not sure but only

22 L. Gardocki, op. cit., p. 86.
23 L. Gardocki, op. cit., p. 86.
27 L. Gardocki, op. cit., p. 84.
28 See e.g.: T. Bojarski, op. cit., p. 75; L. Gardocki, op. cit., p. 84; A. Marek, Kodeks..., op. cit., p. 41; A. Marek, Prawo..., op. cit., p. 137; A. Wąsek (updated by M. Kulik), op. cit., p. 62; J. Warylewski, op. cit., p. 327.
31 L. Gardocki, op. cit., p. 84.
32 See A. Marek, Kodeks..., op. cit., p. 41; A. Marek, Prawo..., op. cit., p. 137.
supposed that his sexual partner was under the age of 15), thus, the perpetrator had *dolus directus* with incomplete awareness\(^{44}\). The intellectual element of intent may consist in complete awareness (full awareness, i.e. awareness of the certainty of the commitment of an offence) or incomplete awareness (i.e. awareness of the possibility of the commitment of an offence)\(^{35}\). The opinion in the literature is right since the volitional element may be referred only to an act as a wholeness, i.e. an act described by all features, and not to particular features of the act. Only the intellectual element may be referred to particular features\(^{36}\).

In the Polish literature, a division of *dolus directus* to *dolus repentinus* and *dolus praemeditatus* is traditionally distinguished\(^{37}\). This division is not important in terms of establishing whether or not an offence has been committed. It can have significance only when sentencing\(^{38}\). Generally, it is maintained that *dolus repentinus* influences the imposed punishment in a mitigating way, and a conduct with *dolus praemeditatus* speaks for a more severe punishment. *In concreto*, however, it can be quite the opposite\(^{39}\). The court does need to determine whether a defendant acted with *dolus directus* or with *dolus praemeditatus*.

When presenting *mens rea* of offence, general intent (*dolus generalis*)\(^{40}\) is traditionally mentioned in the Polish literature. A general intent exists when a perpetrator does not specify, in his psychological experiences, a result which he wants to cause. For example, he assaults a person wanting to do harm to her and causes bodily injury\(^{41}\). A problem arises as to prove that he committed a concrete type of offence of bodily injury (light, medium or serious bodily injury). This problem consists in proving that the mental element of the offence in question has been fulfilled. Some Polish academic writers and the majority of the judiciary are of the view that in the case of offences consisting in causing bodily injury, it is necessary to use the construction of general intent\(^{42}\). An opinion has been expressed that "in the case of responsibility for causing bodily injury, it is, in practice, very difficult to manage without the construction of general intent (…) because the prevision of a concrete influence on health is – bearing in mind the life experience - possible only within certain limits. In such a case a perpetrator is made accountable for this result, which he actually caused"\(^{43}\). It should be explained that under Polish criminal law there are three types of offences consisting in causing bodily injury. They differ in the kind of result, which can be light, medium or serious. An opinion has been expressed in the literature that in the case of these offences, it is very difficult to precisely determine the scope of the intent, therefore a tendency to general assessment of the intent appears, through a statement that the perpetrator wanted to injure the body as a whole, and finally the perpetrator is made accountable for this kind of injury which has been medically established. At the same time it is underlined that this approach is a simplification which is not justified from the viewpoint of the provision of Article 9 § 1 of the Penal Code\(^{44}\). Some academics and representatives of the judiciary are opposed to the usage of *dolus generalis*\(^{45}\). An opinion has been expressed that the usage of the construction of general intent undermines the guarantee function of criminal law, and in particular of criminal process\(^{46}\). The author of this paper is a declared opponent of general intent. It should be emphasized that the construction in


\(^{39}\) Similarly A. Grzeszkowiak, op. cit., p. 97.


\(^{41}\) L. Gardocki, op. cit., p. 83.


\(^{44}\) So T. Bojarski, op. cit., pp. 71-72.

\(^{45}\) See e.g.: K. Buchała, op. cit., p. 317; T. Bojarski, op. cit., p. 72; the ruling of the Supreme Court of 3 January 2006, II KK 80/05, OSNKW 2006, no. 4, item 38.

question has no legal foundation, i.e. the Penal Code does not mention such a kind of \textit{mens rea} of offence. In practice, the construction of \textit{dolus generalis} undoubtedly eases the proving of the causation. \textit{Dolus generalis} allows to make a perpetrator accountable for every factually-occurred result, which is only assignable in the sphere of the causation. In the opinion of the author of this paper, the significance of \textit{mens rea} of offence is in this way marginalized through the statement about a general intent to do harm. The current level of development of criminal law does not allow to apply such a simplification. The construction of \textit{dolus generalis} leads to nearly objective responsibility, i.e. for the result which really happened, irrespectively of the psychological attitude of the perpetrator to his act. A detailed analysis of this problem has been made by the author of this paper in another article\cite{footnote56}. This analysis proved that the usage of \textit{dolus generalis} is not necessary in the practice of the application of the law, also in the case of offences consisting in causing bodily injury. Thus, a recommendation should be made not to use \textit{dolus generalis} at all.

\textit{Mens rea} of offence consisting in negligence has been defined in Article 9 § 2 of the Penal Code in the following way: ‘A prohibited act is committed negligently if the perpetrator has no intent to commit it, however he commits it because of the failure to be careful in the manner required under the circumstances, although he foresaw or could have foreseen the possibility of its commitment’. The issue of negligence raises controversies and was the subject of an acute scientific discussion a few years ago. The Codification Commission of Criminal Law made a bill of an amendment to the Penal Code then, in which, among other things, a change of Article 9 § 2 was proposed\cite{footnote57}. Finally, the proposed amendment was not enacted and the provision of Article 9 § 2 in its original version still applies. In the view of the author of this paper, the proposed change of this provision was not good, however the current regulation of negligence is not perfect either. Currently, the definition of negligence is made up of three elements: the lack of intent, the failure to be careful, and predictability. Below, each element will be subjected to an analysis. The negative element of the definition in the form of the lack of intent does not raise any reservations. It makes the basic difference between intention and negligence, as the next two elements are contained also in the essence of the first form of \textit{mens rea}.

The basic objection which can be made as to the current regulation of negligence concerns the failure to be careful. Through the reference to the failure to be careful in the manner required under the circumstances, the analyzed provision in its current form defines an element of the objective aspect of offence. Its content \textit{in principio} (having no intent to commit an offence) and \textit{in fine} (he foresaw or could have foreseen the possibility of its commitment) characterizes the subjective aspect of offence. In the opinion of the author of this paper, the element relating to \textit{actus reus} (i.e. to the objective aspect of offence) and consisting in the failure to be careful in the manner required under the circumstances should be removed from the definition of negligence\cite{footnote58}. The definition of negligence as a feature of \textit{mens rea} ought not to contain any objective elements. In determining whether or not a perpetrator fulfilled the elements of an alleged offence, first it should be established if he fulfilled the objective elements and, already at this stage, it should be referred to the violation of the rules of carefulness. Then, it should be analyzed if negligence as an effect of a psychological process appeared in the perpetrator. The failure to be careful, in other words, the failure to deal with a legal interest, is not \textit{expressis verbis} given in the description of negligent offences (i.e. it does not belong to the expressly-mentioned features of offence) in the special part of the Penal Code. However, it is obvious that the commitment of a negligent offence is always connected with the failure to observe the carefulness rules. Such a failure belongs to the essence of the behaviour of the perpetrator and is, in some measure, contained in his activity described in a criminal law statute by a verb. To give an example, Article 155 of the Penal Code criminalizes a negligent act causing death of a person. It is clear that the causing of death has to happen as a result of a behaviour of a perpetrator and this behaviour has to consist in the failure to observe the rule of dealing with a legal interest, since otherwise it does not lead to the result. It is, of course, related to the rules of conduct applicable in

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\bibitem{footnote56} K. Banasik, \textit{Dolus generalis} w nauce polskiej i austriackiej, „Prokuratura i Prawo” 2013, no. 11, pp. 83-99.
\end{thebibliography}
given circumstances, thus, the rules estimated with taking into account the current state of knowledge and measures available in circumstances in which an act has been committed.

A question arises, whether or not the failure to be careful in the manner required under the circumstances should be highlighted *verba legis* in relation to negligent offences if it is not highlighted with regard to intentional offences. It should be emphasized that every intentional offence is connected with the failure to observe the rules of dealing with a legal interest. Both offences consisting in the violation of a legal interest and offences consisting in the exposure of a legal interest to danger are connected with the failure to observe a rule of dealing with this legal interest.

The key point of negligence as *mens rea* of offence does not rely on the failure to observe the carefulness rules, but it relies on the possibility to foresee the commitment of the offence. In the opinion of the author of this paper, the proposal of the Codification Commission of Criminal Law, made a few years ago and consisting in the removal of the condition of predictability (the condition of the possibility to foresee) from Article 9 § 2 of the Penal Code, was entirely wrong. It was said in the justification of this proposal that the condition of the predictability of the offence in Article 9 § 2 of the Penal Code had been imprecisely specified. Thus, it could be made more precise instead of being removed. However, in the opinion of the author of this paper, such a legislative action is not necessary. It should be noticed that if the condition in question disappeared from the definition of negligence, the essence of negligence would consist in the lack of intent. And this is not the truth. The essence of negligence goes beyond the lack of intent. If negligence did not contain predictability, negligence would be a negation of *mens rea* consisting in intention. In the literature, there is a widely accepted view that negligence is not a simple negation of intention. This view is right. The appearance of negligence in the perpetrator has to be proven. In other words, it should be proven that the perpetrator fulfilled the mental element of the offence in the form of negligence. The proving cannot consist in just a statement that the perpetrator had no *dolus* to commit the given offence, so he acted negligently. When taking such an approach, the term ‘negligence’ could be abandoned and replaced with the lack of *dolus*. The lack of *dolus* does not describe the psychological state of the perpetrator. *Mens rea* of criminal offences would be limited to the category of *dolus* and would consist in *dolus* or in the lack of *dolus*. Such an approach would lead to an objective liability. A perpetrator would be made accountable - as for a negligent offence – for each result, which occurred because of the failure to be careful in the manner required under the circumstances. In the consequence, to hold a perpetrator criminally responsible for a negligent offence, would be enough to prove that he fulfilled *actus reus* of the given offence and to state at the same time that he had no *dolus* to do so. Taking such an approach, an offence commonly recognized as negligent, would be virtually deprived of *mens rea* and would be constructed only of *actus reus*, Fortunately, the analyzed amendment to the Penal Code has not been enacted. *Mens rea* constitutes the type of offence and expresses a psychological relation of the perpetrator to his act. It is not accurate to resign from the element of predictability as a component part of negligence.

Under Polish criminal law, two forms of negligence are distinguished: conscious negligence and unconscious negligence. A basis for this distinction is given in the provision of Article 9 § 2 of the Penal Code. Both forms of negligence differ only in the aspect of predictability. In the case of conscious negligence, a perpetrator foresaw the possibility of the commitment of an alleged offence. In the case of unconscious negligence, a perpetrator did not foresee the possibility of the commitment of an alleged offence but he could have foreseen. The above-given distinction is not necessary to hold a perpetrator responsible for a negligent offence. The mental element of negligent offences is just

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51 Some academics are of an opposite view that the failure to observe the carefulness rules is the most characteristic feature of negligence according to the Penal Code - A. Grześkowiak, *op. cit.*, p. 107.
negligence. No legal description of any offence demands conscious negligence. No legal description of any offence demands unconscious negligence either. In the practice of the application of the law, it is not necessary to determine the form of negligence (conscious or unconscious) the perpetrator acted with. It is enough to prove that he foresaw the possibility of the commitment of the offence or could have foreseen it. Moreover, there is no form of negligence mentioned in Article 115 § 2 of the Penal Code, i.e. among the factors that are taken into account while estimating the degree of social harmfulness of an act. The catalogue of factors in this provision is comprehensive. It includes, among other things, the forms of dolus. The lawmaker did not distinguish the forms of negligence in this aspect either. The establishment that the perpetrator fulfilled the objective elements of the offence with conscious negligence (and not with unconscious negligence) does not affect the assessment of the degree of social harmfulness of this offence. The form of negligence may, however, influence the punishment given to the perpetrator, although it has not been expressis verbis mentioned in Article 53 § 2 of the Penal Code, but the list of factors given in this Article and taken into account when sentencing is not exhaustive. Having in mind the above, it could be made a de lege ferenda demand to change Article 9 § 2 of the Penal Code, as the legal division of negligence into two forms is not indispensable. However, the distinction of the two forms of negligence is already deeply rooted in the doctrine of not only Polish criminal law. It helps to better describe the state of awareness of the perpetrator and his attitude to the committed act. After deliberations, the author of this paper took the stance that the distinction of conscious and unconscious negligence in Article 9 § 2 of the Penal Code should be maintained.

In the Polish criminal law doctrine, it is controversial how the condition of predictability (the condition of the possibility to foresee) should be understood. According to one view, it should be understood objectively. To the second view, a concrete perpetrator should have had the possibility to foresee the commitment of the offence and the objective predictability is only a starting point. First, the objective element consisting in the duty to foresee should be established, and then the subjective element consisting in the possibility to foresee by a concrete perpetrator, should be proven. In the opinion of the author of this paper, the second view is right. The second view does not resign from the objective predictability, but notices the essence of negligence which exceeds the objective predictability. A concrete perpetrator, i.e. the perpetrator who fulfilled both the conduct element and the mental element of the given offence, has to be held responsible for the given offence. If the feature of offence describing the mental element is contained in the psyche and consists in a certain psychological act, it cannot be separated from the process happening in the sphere of psychological experiences of the perpetrator. The establishment of the objective predictability of the fulfilment of the elements of the offence in given circumstances conditions but does not necessarily imply the existence of the possibility to foresee in the concrete perpetrator. It is necessary to determine that a certain act of awareness from the positive side happened in the psyche of the perpetrator.

The third form of the mental element of offence is the mixed mens rea (mens rea of a mixed structure; the complex mens rea; the combined mens rea). It has been defined in Article 9 § 3 of the Penal Code in the following way: ‘The perpetrator is liable to more severe liability, which a statute makes expressis verbis, than the offences of basic type. The qualified types of offence.

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58 On the degree of criminal gravity of both forms of negligence see J. Giezek [in:] J. Giezek (ed.), Kodeks..., op. cit., p. 70.
61 So for example, A. Zoll [in:] A. Zoll (ed.), Kodeks karny. Część ogólna..., op. cit., p. 123.
64 K. Banasik, Nieumyślność..., op. cit., pp. 24-25.
occurs in a certain time distance. The complex behaviour of the perpetrator is recognized as one criminal offence. A basic part of this offence is the underlying offence, which can be intentional or negligent. Another part of this offence is a result being a consequence of the underlying offence. A result being a consequence occurs negligently. It is characteristic for the offences of the mixed mens rea that they may have two results: a closer result and a further result. The underlying offence (the behaviour of a person) is a basic type of offence. A result can be contained in its legal description, which in the event of the occurrence of another result (a further result) would be referred to as a closer result. An example of this kind of offence is the intentional-negligent offence specified in Article 158 § 3 of the Penal Code (an offence of the participation in a fight or battery with the consequence in the form of the death of a person). The underlying offence can also be a formal type of offence, i.e. an offence which does not require any result to be completed. In the case of such a type of offence, a result being the consequence of the underlying offence is the sole result in the legal description of the entire offence of the mixed mens rea. An illustration of this kind of offence is the intentional-negligent offence specified in Article 207 § 3 of the Penal Code (mistreatment of another person with the consequence in the form of an attempt of suicide).

The basic form of the mixed mens rea is intention-negligence. Under Polish criminal law there are many intentional-negligent offences. In this construction, the underlying offence (the basic act) is encompassed through intention and the consequence is encompassed through negligence. The underlying act may be committed with dolus directus or dolus eventualis. The consequence may be encompassed through either conscious negligence or unconscious negligence. In other words, the basic act is done intentionally. A result follows from this basic act. The perpetrator did not encompass this result through his dolus. The perpetrator will be held criminally responsible for this result being the consequence of his intentional act if it is possible to prove that the perpetrator foresaw or could have foreseen this result. The entire behaviour of the perpetrator, along with its consequence, is recognized as one offence. This is an intentional-negligent offence. An example of this kind of offence is the offence specified in Article 173 § 3 of the Penal Code (an intentional act causing a catastrophe on land or water or to air traffic with the consequence in the form of the death of a human being or the grievous bodily harm to many persons).

The second form of the mixed mens rea is negligence-negligence. This form appears when the underlying offence is committed negligently and the consequence of this offence is encompassed through negligence. This kind of the mental element of offence appears very rarely. Under Polish criminal law there are only a few negligent-negligent offences (for example offences specified in Article 163 § 4, Article 165 § 4, Article 173 § 4 of the Penal Code). One of them is the negligent act causing a catastrophe on land or water or to air traffic with the consequence in the form of the death of a human being or the grievous bodily harm to many persons (Article 173 § 4 of the Penal Code).

It should be discussed whether or not the usage of so complicated structure of mens rea is necessary. The negligent-negligent offences are actually negligent offences as a whole. There is no element of dolus contained in them. Maybe it would be better to create in the Penal Code just entirely negligent offences instead of using the construction of the negligent-negligent offences. They would be the basic types of offences having a further result, which is de lege lata treated as the consequence of the basic act of the perpetrator. They would have this further result as an inherent element. In other words, the description of the basic type of offence would include a closer result and a further result. A higher degree of social harmfulness (higher than the degree of social harmfulness of a similar basic type, differing only in the lack of a further result) would be taken into account in the threat of punishment. However, the method of the creation of types of offences, used by the Polish lawmaker and commonly accepted in the Polish doctrine, speaks against such a proposition. According to the idea drawn above, this new negligent basic type of offence, including both a closer result and a further result, would have an additional element (being the qualifying element as it would speak for a more severe punishment) in the relation to the currently existing negligent basic type of offence (for example in Article 173 § 2 of the Penal Code). All other elements of the offence would be identical. Thus, this new type would be a qualified type in the relation to the current basic type. Ergo, it would result in evident inconsistency in the regulations of the Penal Code. Furthermore, the circumstance that the negligent-negligent offences allow to better illustrate the behaviour of the perpetrator speaks
in favour of the existence of such types of offences in criminal law. The complicated structure of the negligent-negligent offences obliges to a detailed analysis of a conduct of a perpetrator and, in that way, prevents from automatically holding a perpetrator criminally accountable for each occurring result (i.e. it should be proven that the perpetrator foresaw or could have foreseen the possibility of the occurrence of the further result). Summarizing, the negligent-negligent offences, although very rare, should be maintained in the Penal Code.

In the justification to the bill of the current Penal Code, i.e. the statute of 6 June 1997, one more form of the mixed mens rea has been mentioned, i.e. intention-intention. It has been stated that such a kind of the mental element of offence qualified through a consequence is also theoretically possible. However, the authors of this justification did not give any example of intentional-intentional offence. No example has been also given in the literature, although many authors, when writing a commentary to Article 9 § 3 of the Penal Code, mention intentional-intentional offences as a possible form of mens rea. In the latest literature, there has been rightly stated that intentional-intentional offences are just intentional offences. In the opinion of the author of this paper, there is no need at all to distinguish intentional-intentional offences, even in the theory of criminal law. Indeed, such offences do not exist.

The acts whose mens rea has been, in some measure, forcibly attempted to be described as intention-intention are, in their essence, intentional acts. They are basic types of offences. To describe their mens rea, it is enough to use the definition of the first form of mens rea given in Article 9 § 1 of the Penal Code.

Summarizing the deliberations on the mental element of offence in Polish criminal law, it should be stated that the current regulation on mens rea consisting in intention and on the mixed mens rea is appropriate and does not need any change. The above-made analysis proved that an amendment to Article 9 of the Penal Code in the aspect of the regulation of negligence should be done. The following de lege ferenda demand should be made: the element concerning actus reus (the material element of offence) and consisting in the failure to be careful in the manner required under the circumstances should be removed from the definition of negligence.

67 See e.g.: J. Giezek [in:] J. Giezek (ed.), Kodeks..., op. cit., p. 73; A. Grześkowskiak, op. cit., p. 113; J. Warylewski, op. cit., p. 330.
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Relationships between Teachers’ Expectations from Professional Development Programs and Their Demographics and Epistemological Beliefs

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This quantitative study aimed to investigate the relationships between teachers’ ranking of their expectations from professional development programs (PDP) and their demographics and epistemological beliefs. The participants included 65 middle and secondary science teachers. Questionnaires tapping demographics, expectations from effective PDPs, and epistemological beliefs were given to the teachers at the beginning of a PDP on inquiry-based science education (IBSE). Demographics questionnaire involved questions about education level, field of study, age, years of teaching experience, total number of participated PDP, and total number of participated PDP on IBSE. Expectations from PDPs questionnaire, developed by the researchers, asked the teachers to rank the given 7 PDP features (providing instructional materials/activities, master teachers’ sharing of their classroom experiences, providing on-site support, supporting interactions among teachers, aiming to increase teachers’ content knowledge, aiming to increase teachers’ pedagogical knowledge, having the participant feel valued), with 1 indicating the most important feature. Epistemological beliefs questionnaire (Hofer, 2000) measured the participants’ beliefs about certainty/simplicity of knowledge, source of knowledge, justification for knowing, and attainment of truth. Data were analyzed using Spearman’s rho correlation, Kruskal-Wallis test and Mann-Whitney U tests. Findings showed that the teachers’ rankings of their expectations from PDPs were significantly correlated with the total number of PDPs they participated about IBSE, their fields of study, and their epistemological beliefs about certainty/simplicity of knowledge. Moreover, they revealed that the teachers’ thoughts about the importance of the given PDP features did not show a significant difference with respect to their education level, age, years of teaching experience and total number of participated PDPs. One of the important findings of this study to be discussed is that the quantity of PDPs the teachers participated did not affect their expectations from a PDP. This seems to raise doubts on the effectiveness of the PDPs that our teachers participated in before. There is an emerging need for further analyses of the content and implementation of PDPs rather than the number of PDPs to participate in order to enhance teachers’ competencies.
Lexical Variation across Three Generations in the Moken Dialect of Southwestern Thailand

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Abstract

The need to preserve any language generally stems from the fact that languages transform over time. Changes occur on different levels, ranging from the phonetic to the syntactic. This research conducts analyses regarding the degree of lexical variation across three generations of the Moken people. They reside on Surin Island, Phang Nga Province, in Southwestern Thailand. The informants consisted of Group 1 (5-10 years of age), Group 2 (20-25 years of age), and Group 3 (35-and-over years of age). In following the tenets of linguistics research, there is a minimum of ten years between age groups in order to better assist in securing any observable language change. The study shows that only Group 1 (the youngest generation) exhibited lexical variation. Factors influencing the variation were explored, with one salient factor being the temporary relocation of the Moken people after the Tsunami of 2004. Since the youngest generation is the only group displaying lexical change, any attempt to preserve the Moken language should be focused on the children. In addition, since language and culture are intertwined, it may be advantageous to concentrate on the youth as it applies to the cultural preservation of the Moken people.

Keywords: Lexical Variation, Moken Dialect, Language Change, Language Preservation

1. Introduction

1.1. Nature of Language

Linguistically, languages change constantly. Language can be compared to life. It can have a beginning point; it can change; and it can disappear. The changes can be at different levels: phonetic, lexical, semantic, morphological, and syntactic. Each change can be either minute or enormous. The smallest level of change is the alteration of one sound in a word (phonetic level). Features of language, such as manner of articulation, place of articulation, or voicing, can change. One type of change involves the sound at the beginning of a word, the sound in the middle of a word, or the sound at the end of a word. This type of sound change can also pertain to a consonant sound or a vowel sound. Most languages are comprised of consonant and vowel sounds. Therefore, most sounds that have changed are those of consonants and vowels.

For generations, people have moved from one place to another. This is one factor that has influenced language to change. Pronunciation evolves over time. Words can be borrowed from other languages. The transformation can be either frenetic or can occur at a snail’s pace. In addition, language change can be attributed to many factors, such as language contact, language learning, language usage, or social differentiation.

This research aimed to study the lexical variation of a particular dialect (the Moken dialect). Phonetic variation can occur in any dialect as mentioned earlier. To study language change in general, historical and comparative linguistics is considered. This means that one can study language change over a period of time (diachronic study). However, since linguists cannot always wait for time to pass (the need to wait for several years in many cases), they study changes in speech from different generations of speakers while studying all generations at the same time. Thus, linguists usually study language change across two or three generations of a dialect to see more clearly the changes in progress. Each generation represents a point in time, i.e., the younger generation represents the language of a future time; the adult generation represents the language of the current time; and the older generation represents the language of a time in the past. Therefore, this present research included the study of the Moken language across three generations.
Language variation, or lexical variation, in this study refers to language change on a lexical level, i.e., two forms or more of the same word having the same core meaning. This change might occur due to the passing of time, which could substantiate that language does change over time due to internal and/or external factors.

Internal factors may include the symmetry of language, e.g., if there is a front vowel, there is usually a back vowel to balance out the sound system. Another factor may be related to economy, i.e., in general, a language system does not allow two forms of the same word to have an identical meaning. For example, a language might contain a borrowed word “sun” and use it to mean the “sun,” but the borrowed word “sun” might be used only in an informal situation.

External factors may include: 1) language contact that brings about a bilingual or multilingual situation. In this case, there is language interference from outside languages; 2) social factors, such as age, gender, education, or social status of the speakers; 3) attitudes of the speakers, e.g., the speakers do not accept or allow certain sounds to be integrated into the original language; and/or 4) new technology influences the use of a language (Liamprawat, 2013).

With reference to the Moken or Mokien-Moken dialects, they are typically divided into two languages, Moken and Moklen (Hammarström, H.; Forkel, R.; Haspelmath, M.; Bank, S., 2016). The Moken dialect is the focus of this study. (Other related dialects include the Moklen [Moklem], the Orang Sireh [Betel-leaf], and the Orang Lanta.) (Steinhauer, 2008). The Moken people are an Austronesian ethnic group. They speak their own language, the Moken language, which belongs to the Austronesian family (International, 2016). With a sea-based culture, the Moken people are sea nomads, traveling among the coasts and islands of the Andaman Sea. The Moken dialect studied in this research is that of the Moken people whose habitat is on Surin Island, Phang Nga Province, in Southwestern Thailand. Some of the Moken people on Surin Island have moved there from the coast of Myanmar. The Moken dialect studied in this research is specifically the one spoken by those living on Surin Island, Phang Nga Province, in Thailand. Surin Island is off the coast of Kura Buri, a small provincial town in the province of Phang Nga.

1.2. Moken People

Pertaining to relevant background information about the Moken people, there are, in fact, three discrete tribes living along the coast of the Andaman Sea (The Moken People, 2016). They live along the coasts of Myanmar and Thailand. The three tribes consist of the Selung people on the Mergui Archipelago, the Moken or Moklen people of Phang Nga Province, and the Urak Lawoi people living from Phuket to Satun. All three tribes have Austronesian roots which include language, culture, and lifestyle. None of the dialects of these three tribes has written form. Their history and folklore have been passed down orally from generation to generation.

It is likely that the Moken people migrated from Southern China approximately 4,000 years ago. While moving through Malaysia, they finally separated from other migrant groups during the late 17th century (Ivanoff, J., 2005). It was assumed by anthropologist Jacques Ivanoff that the name of the Moken people comes from the words “Lamor” and “Ken” (Ivanoff, 2001). “Lamor” means to drown, and “Ken” is the name of a queen’s sister in Moken legend.

The Thai government converted Surin Island into a national park in 1981 (Stranded, 2008). The Moken people established a settlement on Surin Island after the Tsunami of 2004. Some of the Moken people have received Thai citizenship while others have not. Some of the Moken people have been given an Andaman People’s card, which is not exactly an official citizenship. The Moken people currently live in a village on Surin Island. Traditionally, the Moken people have traveled between Thailand and Myanmar as sea nomads.

In 1977, UNESCO launched the Andaman Pilot Project, which included provisions for the protection of the Moken environment and the preservation of their culture. This project has also assisted the Moken people in gaining some control over changes stemming from tourism (Sukin, 2000). Nevertheless, tourism has had a considerable impact on the Moken people.
According to Hinshiranan (1996), even though the Moken people are sea nomads, they do not wander aimlessly across the sea. They have a level of “nomadism” that varies from group to group and within each group itself. Some groups prefer to remain within the reef areas while others travel long distances during fishing cycles (Nimmo, 1986).

The Moken people living on Surin Island are most probably the only sea nomads that settle down and live in bamboo huts all year round, traveling by sea occasionally for food (Hinshiranan, 2001). This makes them a homogeneous group—suitable for the purpose of this research. As of 2009, the Moken people numbered between 2,000 and 3,000 members (Dancause, Chan, Hinshiranan, and Lum, 2009).

1.3. Moken Language

The Moken language belongs to the Austronesian family. Currently, many Austronesian languages are spoken throughout Southeast Asia and the Pacific, from Taiwan to New Zealand (Dancause, Chan, Hinshiranan, and Lum, 2009). Austronesian speakers have quickly spread from Taiwan to the Philippines, to Indonesia, parts of Melanesia, and the rest of the Pacific. Linguistic patterns suggest some contact between the Moken people and indigenous populations of the Malay Peninsula, exhibiting influences from Austroasiatic Mon-Khmer languages, with some limited similarities to the Aslian branch. This suggests contact between proto-Moken-Moken speakers and early Mon-Khmer speakers on the Malay Peninsula. This contact could conceivably have resulted from trade. Other dialects are the Basing, Chau Ko’, Dung, Ja-it, Jadiak, Jait, L’be, Lawta, Mawken, Moklen, Orang Laut, Salon, Salong, Selong, and Selung (OLAC, 2016).

Moken, the language spoken by the Moken people, is considered to be endangered. In addition, according to Pittayaporn (2005), the Moken language has shifted in many respects toward the mainland Southeast Asian norm. This could cause the Moken language to be primed for tonogenesis. The Moken people have ongoing contact with the Thai and Burmese languages, both of which are tonal. The Moken language is not tonal (Jenks, 2010). In addition, the Moken language, despite being Austronesian, has developed many features which are characteristic of mainland Southeast Asian languages, such as those of the Tai-Kadai, Tibeto-Burman, Mon-Khmer, and Hmong-Mien (Pittayaporn, 2005).

According to Jenks (2010), the following is the Moken Consonant Inventory:

\[
\begin{align*}
\text{ph} & \quad \text{th} & \quad \text{ch} & \quad \text{kh} \\
p & \quad t & \quad c & \quad k & \quad (?) \\
b & \quad d & \quad j & \quad g \\
m & \quad n & \quad \text{n} & \quad \eta \\
w & \quad l & \quad j
\end{align*}
\]

Additionally, the following is the Moken Vowel Inventory:

\[
\begin{align*}
i, \ i: & \quad u, \ u: \\
e, \ e: & \quad \partial, \ o, \ o: \\
e, \ e: & \quad a, \ a: \quad \partial, \ \partial: \\
\end{align*}
\]

1.4. Tsunami of 2004

The Moken people suffered from utter devastation to their fishing boats and housing during the Tsunami of 2004, which struck the entire Andaman coast. However, they survived the Tsunami and relocated to the current Moken village. There has been a rise in the number of tourists visiting the
Moken village. This has had an influence on the Moken people’s way of life, including their language and culture.

After the Tsunami of 2004, the Thai government provided a school for the Moken children. The students learn both Thai and English in the classroom (Smillie, 2014). The children have started to speak Thai along with some English. They have begun to substitute a number of Thai words for certain Moken words. The Tsunami of 2004 taught certain lessons to the younger Moken generation, with one of the lessons having been that there is perhaps a superiority of a literate culture over an oral one.

Influences from outside contact and their temporary relocation after the 2004 Tsunami have had an impact on the Moken people. The present researcher studied only the Moken language being spoken by the Moken people on Surin Island, Phang Nga Province, in Southwestern Thailand, to see if any influences had brought about any lexical change across three generations.

2. Objectives

This study involved conducting analyses of the degree of lexical variation occurring in words (from a word list) spoken by three generations of the Moken people, in their Moken dialect. They reside on Surin Island, Phang Nga Province, in Southwestern Thailand. The phonetics of each word were analyzed and grouped to determine possible patterns with regard to lexical variation across three generations. The study will yield results as to whether there are any lexical changes across the three generations, which could possibly assist in the preservation of the Moken language and culture. In addition, from the viewpoint of the Thai government and/or the Moken people, this study may help lead to future changes in educational policy, i.e., this applies to whether there should be a more concerted effort to preserve the Moken language or determine to what extent the Thai language (central Thai) should be introduced and/or mixed with the Moken language.

3. Hypotheses

3.1 There will be lexical change from generation to generation due to contact the Moken people have had with people outside their conclave.

3.2 There will be lexical change across generations due to language change that would naturally occur over time.

4. Scope of the Study

4.1 This research was focused solely on the Moken language spoken by the Moken people residing on Surin Island, Phang Nga Province, in Thailand.

4.2 The informants were limited to the Moken people residing on Surin Island, Phang Nga Province, in Thailand. This group of people was homogeneous, with a strong cultural background and with the possibility of preserving their original Moken language.

4.3 Twenty-eight tokens/words were chosen to be on a word list meant to show possible lexical change over the course of three generations.

5. Methods

This research was conducted as follows:

5.1 A word list was compiled. The words chosen described nature, something familiar to the Moken people. The list was created after an investigation based on earlier studies of the Moken dialect by Chantanakomes (1980). The list had eight categories (from the “A” section). Two categories from the list were chosen at random by means of a drawing. The categories chosen were sky and weather.

5.2 The word list contained a total of 28 words. The words were as follows:
Table 1. List of 28 words in alphabetical order

<table>
<thead>
<tr>
<th>Number</th>
<th>Word</th>
<th>Number</th>
<th>Word</th>
<th>Number</th>
<th>Word</th>
<th>Number</th>
<th>Word</th>
<th>Number</th>
<th>Word</th>
<th>Number</th>
<th>Word</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>against the wind</td>
<td>7</td>
<td>light</td>
<td>13</td>
<td>rain lightly</td>
<td>19</td>
<td>storm</td>
<td>25</td>
<td>to flutter</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>cloud</td>
<td>8</td>
<td>lightning</td>
<td>14</td>
<td>rainbow</td>
<td>20</td>
<td>summer wind</td>
<td>26</td>
<td>very hot</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>cold</td>
<td>9</td>
<td>moon</td>
<td>15</td>
<td>rainy wind</td>
<td>21</td>
<td>sun</td>
<td>27</td>
<td>water-spout</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>cool</td>
<td>10</td>
<td>morning star</td>
<td>16</td>
<td>shadow</td>
<td>22</td>
<td>sunlight</td>
<td>28</td>
<td>wind</td>
<td></td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>dew</td>
<td>11</td>
<td>north wind</td>
<td>17</td>
<td>south wind</td>
<td>23</td>
<td>thunder</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>hot</td>
<td>12</td>
<td>rain</td>
<td>18</td>
<td>star</td>
<td>24</td>
<td>tide/go with the tide</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

5.3 Twenty-eight photographs, each representing one of the words, were produced using a 4” x 6” format. On the back of each photograph, there was a number ranging from 1 to 28.

5.4 The order of photographs was determined randomly by the drawing of a number. Subsequently, all 28 photographs were rearranged and presented to the informants according to the following order:

Table 2. List of 28 words in random order (the order presented to the informants)

<table>
<thead>
<tr>
<th>Number</th>
<th>Word</th>
<th>Number</th>
<th>Word</th>
<th>Number</th>
<th>Word</th>
<th>Number</th>
<th>Word</th>
<th>Number</th>
<th>Word</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>thunder</td>
<td>7</td>
<td>against the wind</td>
<td>13</td>
<td>sunlight</td>
<td>19</td>
<td>morning star</td>
<td>25</td>
<td>very hot</td>
</tr>
<tr>
<td>2</td>
<td>cool</td>
<td>8</td>
<td>light</td>
<td>14</td>
<td>summer wind</td>
<td>20</td>
<td>rainy wind</td>
<td>26</td>
<td>sun</td>
</tr>
<tr>
<td>3</td>
<td>south wind</td>
<td>9</td>
<td>cloud</td>
<td>15</td>
<td>lightning</td>
<td>21</td>
<td>star</td>
<td>27</td>
<td>rain</td>
</tr>
<tr>
<td>4</td>
<td>to flutter</td>
<td>10</td>
<td>dew</td>
<td>16</td>
<td>wind</td>
<td>22</td>
<td>hot</td>
<td>28</td>
<td>storm</td>
</tr>
<tr>
<td>5</td>
<td>water-spout</td>
<td>11</td>
<td>cold</td>
<td>17</td>
<td>moon</td>
<td>23</td>
<td>rainbow</td>
<td></td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>shadow</td>
<td>12</td>
<td>rain lightly</td>
<td>18</td>
<td>north wind</td>
<td>24</td>
<td>tide/go with the tide</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

5.5 The three generations of Moken people were grouped as follows:

5.5.1 Group 1 was comprised of 6 informants, 5 – 10 years of age.
5.5.2 Group 2 was comprised of 6 informants, 20 – 25 years of age.
5.5.3 Group 3 was comprised of 6 informants, 35-and-over years of age.

The total number of informants was 18.

The informants were Moken people who were born and raised in the Moken community and who had resided on Surin Island, Phang Nga Province, in Thailand for at least three years. In addition, the informants were able to use the Moken language in their everyday life and were experts in the Moken language. Moreover, the informants were able to pronounce Moken words clearly, had body organs that functioned normally, had time available to allow for the recording of the data, and were willing to be recorded.
Due to the fact that the life expectancy of the Moken people on Surin Island, Phang Nga Province, is relatively short, with an approximate span of only 50 years, the age range of Groups 1 and 2 was limited to five years each. Children (5 – 10 years of age) were assigned to Group 1; adults (20 – 25 years of age) were assigned to Group 2; and those who were considered to be elderly (35-and-over years of age) were assigned to Group 3. There was a ten-year age gap between Groups 1 and 2, and similarly between Groups 2 and 3. This was designed to assure that enough time had elapsed (ten years between age groups) for this research to be considered a diachronic study. (A minimum of ten years is usually required between age group to better assist in securing any observable language change.)

5.6 Data were collected by means of a digital audio recorder. The researcher was the person administering the recording. A form was created to aid the researcher in quickly transcribing the sounds heard into the IPA format in real time. The top of the form had space in which to fill in the informants’ information, such as name, gender, and age. The form listed all of the aforementioned 28 words in the corresponding random order of photographs. A pen was used to record the IPA transcriptions—one form per informant.

5.7 The data collection was conducted as follows:

5.7.1 First, there was an interview of the informants. Before the necessary information was collected, a rapport was established between the researcher and the informants. Some informants spoke Thai; some spoke limited Thai; and some spoke virtually no Thai. The researcher spoke Thai to the informants while conducting the interviews and gave some directions to the informants regarding the recording procedure. An interpreter was used in the event that an informant could not speak or understand Thai. The informants knowingly and willingly allowed the researcher to record their pronunciation of each word on the word list. Cooperation from the informants was secured without any promise of reward for their participation.

5.7.2 During the recording session, each informant was first instructed to look at the photographs (one photograph at a time) and to identify the photograph seen by saying a Moken word, e.g., when an informant saw a photograph of a rainbow, he/she said the word for ‘rainbow’ in the Moken dialect. Each informant was instructed to say that same word three times, with a pause of at least one second between iterations. The iterations of each word were recorded. After the informant was finished saying a word three times, the researcher repeated that word back to the informant to confirm that the researcher had correctly heard the pronunciation of the word. (This was designed to assist in the accuracy of the IPA transcription.) The researcher then transcribed the words into the IPA format, filling in the appropriate space on the prepared form mentioned in 5.6. (The recording was used for the purpose of being “backup data,” if needed.)

5.7.3 When any photograph was not clear enough for any informant to identify, body language and sound effects were implemented—produced by the researcher to assist in the process of identifying exactly what each photograph represented.

5.8 Each recorded token/word was examined as follows:

5.8.1 Before analyzing, the Moken dialect’s sound system was obtained and studied. The sound system included all consonant and vowel sounds.

5.8.2 The present researcher organized all of the tokens/words by listing each of them on a form. The form had seven columns, with the headings represented as follows: No. (number), Word (in English), IPA, Total Informants, Group 1, Group 2, and Group 3. The form can be viewed below:
6. Analyses

6.1 There were 18 words (numbers 1, 2, 4, 5, 6, 9, 11, 13, 15, 16, 17, 21, 22, 23, 24, 25, 26, and 27 from Table 2) that did not exhibit any lexical variation across the three generations. The 18 words were pronounced exactly the same across all three generations. Therefore, out of a total of 28 words, eighteen words (64.29%) were pronounced the same. The present

<table>
<thead>
<tr>
<th>No.</th>
<th>Word</th>
<th>Ipa</th>
<th>Total Infor-Marts</th>
<th>Group 1 (5-10)</th>
<th>Group 2 (20-25)</th>
<th>Group 3 (35+)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>thunder</td>
<td>/təguːn/</td>
<td>18</td>
<td>6</td>
<td>6</td>
<td>6</td>
</tr>
<tr>
<td>2</td>
<td>cool</td>
<td>/teŋəːm/</td>
<td>18</td>
<td>6</td>
<td>6</td>
<td>6</td>
</tr>
<tr>
<td>3</td>
<td>south wind</td>
<td>/pajaʔ/</td>
<td>12</td>
<td>0</td>
<td>6</td>
<td>6</td>
</tr>
<tr>
<td></td>
<td></td>
<td>/ʔaŋin/</td>
<td>6</td>
<td>6</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>4</td>
<td>to flutter</td>
<td>/lajaːn/</td>
<td>18</td>
<td>6</td>
<td>6</td>
<td>6</td>
</tr>
<tr>
<td>5</td>
<td>waterspout</td>
<td>/budesŋ/</td>
<td>18</td>
<td>6</td>
<td>6</td>
<td>6</td>
</tr>
<tr>
<td>6</td>
<td>shadow</td>
<td>/gamaː/</td>
<td>18</td>
<td>6</td>
<td>6</td>
<td>6</td>
</tr>
<tr>
<td>7</td>
<td>against the wind</td>
<td>/lajaːn/</td>
<td>12</td>
<td>0</td>
<td>6</td>
<td>6</td>
</tr>
<tr>
<td></td>
<td></td>
<td>/ʔaŋin/</td>
<td>6</td>
<td>6</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>8</td>
<td>light</td>
<td>/tahiːk/</td>
<td>15</td>
<td>3</td>
<td>6</td>
<td>6</td>
</tr>
<tr>
<td></td>
<td></td>
<td>/saŋ/</td>
<td>3</td>
<td>3</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>9</td>
<td>cloud</td>
<td>/kaniaŋ/</td>
<td>18</td>
<td>6</td>
<td>6</td>
<td>6</td>
</tr>
<tr>
<td>10</td>
<td>dew</td>
<td>/winmuːn/</td>
<td>12</td>
<td>0</td>
<td>6</td>
<td>6</td>
</tr>
<tr>
<td></td>
<td></td>
<td>/naːmkhaːŋ/</td>
<td>6</td>
<td>6</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>11</td>
<td>cold</td>
<td>/lupiːt/</td>
<td>18</td>
<td>6</td>
<td>6</td>
<td>6</td>
</tr>
<tr>
<td>12</td>
<td>rain lightly</td>
<td>/tʃlit/</td>
<td>12</td>
<td>0</td>
<td>6</td>
<td>6</td>
</tr>
<tr>
<td></td>
<td></td>
<td>/kujaːn/</td>
<td>6</td>
<td>6</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>13</td>
<td>sunlight</td>
<td>/polaːŋ/</td>
<td>18</td>
<td>6</td>
<td>6</td>
<td>6</td>
</tr>
<tr>
<td>14</td>
<td>summer wind</td>
<td>/moluy/</td>
<td>12</td>
<td>0</td>
<td>6</td>
<td>6</td>
</tr>
<tr>
<td></td>
<td></td>
<td>/ʔaŋin/</td>
<td>6</td>
<td>6</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>15</td>
<td>lightning</td>
<td>/kelaːt/</td>
<td>18</td>
<td>6</td>
<td>6</td>
<td>6</td>
</tr>
<tr>
<td>16</td>
<td>wind</td>
<td>/ʔaŋin/</td>
<td>18</td>
<td>6</td>
<td>6</td>
<td>6</td>
</tr>
<tr>
<td>17</td>
<td>moon</td>
<td>/bulaːŋ/</td>
<td>18</td>
<td>6</td>
<td>6</td>
<td>6</td>
</tr>
<tr>
<td>18</td>
<td>north wind</td>
<td>/tal əŋ/</td>
<td>12</td>
<td>0</td>
<td>6</td>
<td>6</td>
</tr>
<tr>
<td></td>
<td></td>
<td>/ʔaŋin/</td>
<td>6</td>
<td>6</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>19</td>
<td>morning star</td>
<td>/laŋu/</td>
<td>12</td>
<td>0</td>
<td>6</td>
<td>6</td>
</tr>
<tr>
<td></td>
<td></td>
<td>/daːʔo/</td>
<td>2</td>
<td>2</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td></td>
<td>/bituːk/</td>
<td>4</td>
<td>4</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>20</td>
<td>rainy wind</td>
<td>/balaːt/</td>
<td>12</td>
<td>0</td>
<td>6</td>
<td>6</td>
</tr>
<tr>
<td></td>
<td></td>
<td>/ʔaŋin/</td>
<td>6</td>
<td>6</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>21</td>
<td>star</td>
<td>/bituːk/</td>
<td>18</td>
<td>6</td>
<td>6</td>
<td>6</td>
</tr>
<tr>
<td>22</td>
<td>hot</td>
<td>/kolaːt/</td>
<td>18</td>
<td>6</td>
<td>6</td>
<td>6</td>
</tr>
<tr>
<td>23</td>
<td>rainbow</td>
<td>/sunɁ/</td>
<td>18</td>
<td>6</td>
<td>6</td>
<td>6</td>
</tr>
<tr>
<td>24</td>
<td>tide/go with the tide</td>
<td>/ɲoloŋ/</td>
<td>18</td>
<td>6</td>
<td>6</td>
<td>6</td>
</tr>
<tr>
<td>25</td>
<td>very hot</td>
<td>/laʔuʔ/</td>
<td>18</td>
<td>6</td>
<td>6</td>
<td>6</td>
</tr>
<tr>
<td>26</td>
<td>sun</td>
<td>/mataʔʔaɁoloy/</td>
<td>18</td>
<td>6</td>
<td>6</td>
<td>6</td>
</tr>
<tr>
<td>27</td>
<td>rain</td>
<td>/kujaːn/</td>
<td>18</td>
<td>6</td>
<td>6</td>
<td>6</td>
</tr>
<tr>
<td>28</td>
<td>storm</td>
<td>/tʃut/</td>
<td>13</td>
<td>1</td>
<td>6</td>
<td>6</td>
</tr>
<tr>
<td></td>
<td></td>
<td>/phaːjuʔ/</td>
<td>5</td>
<td>5</td>
<td>0</td>
<td>0</td>
</tr>
</tbody>
</table>

Table 3. Data collection separated by groups
researcher adapted, from Liamprawat (2013), the practice of designating an ‘A’ symbol to represent the pronunciation or use of the same lexical form of a token/word as follows:

Table 4. Pattern of lexical variation (A A A)

<table>
<thead>
<tr>
<th>Group 1 (5-10 yrs. of age)</th>
<th>Group 2 (20-25 yrs. of age)</th>
<th>Group 3 (35-and-over yrs. of age)</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>A</td>
<td>A</td>
</tr>
</tbody>
</table>

Table 5. The 18 words without lexical variation

<table>
<thead>
<tr>
<th>Number</th>
<th>Word</th>
<th>Moken</th>
<th>Age: groups 1, 2, and 3</th>
<th>Pattern (of lexical variation)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>‘thunder’</td>
<td>/təgu:n/</td>
<td>/təgu:n/</td>
<td>A A A</td>
</tr>
<tr>
<td>2</td>
<td>‘cool’</td>
<td>/tʰəŋɛ:m'/</td>
<td>/tʰəŋɛ:m'/</td>
<td>A A A</td>
</tr>
<tr>
<td>4</td>
<td>‘to flutter’</td>
<td>/laja:n/</td>
<td>/laja:n/</td>
<td>A A A</td>
</tr>
<tr>
<td>5</td>
<td>‘waterspout’</td>
<td>/buden/</td>
<td>/buden/</td>
<td>A A A</td>
</tr>
<tr>
<td>6</td>
<td>‘shadow’</td>
<td>/gama:/</td>
<td>/gama:/</td>
<td>A A A</td>
</tr>
<tr>
<td>9</td>
<td>‘cloud’</td>
<td>/kaniən/</td>
<td>/kaniən/</td>
<td>A A A</td>
</tr>
<tr>
<td>11</td>
<td>‘cold’</td>
<td>/lupi:t/</td>
<td>/lupi:t/</td>
<td>A A A</td>
</tr>
<tr>
<td>13</td>
<td>‘sunlight’</td>
<td>/pola:n/</td>
<td>/pola:n/</td>
<td>A A A</td>
</tr>
<tr>
<td>15</td>
<td>‘lightning’</td>
<td>/kela:t/</td>
<td>/kela:t/</td>
<td>A A A</td>
</tr>
<tr>
<td>16</td>
<td>‘wind’</td>
<td>/ʔanjɪn/</td>
<td>/ʔanjɪn/</td>
<td>A A A</td>
</tr>
<tr>
<td>17</td>
<td>‘moon’</td>
<td>/bula:n/</td>
<td>/bula:n/</td>
<td>A A A</td>
</tr>
<tr>
<td>21</td>
<td>‘star’</td>
<td>/bituək/</td>
<td>/bituək/</td>
<td>A A A</td>
</tr>
<tr>
<td>22</td>
<td>‘hot’</td>
<td>/kola:t/</td>
<td>/kola:t/</td>
<td>A A A</td>
</tr>
<tr>
<td>23</td>
<td>‘rainbow’</td>
<td>/suni:/</td>
<td>/suni:/</td>
<td>A A A</td>
</tr>
<tr>
<td>24</td>
<td>‘tide/go with the tide’</td>
<td>/polon/</td>
<td>/polon/</td>
<td>A A A</td>
</tr>
<tr>
<td>25</td>
<td>‘very hot’</td>
<td>/laʔuʔ?/</td>
<td>/laʔuʔ?/</td>
<td>A A A</td>
</tr>
<tr>
<td>26</td>
<td>‘sun’</td>
<td>/mataʔ ʔaloy/</td>
<td>/mataʔ ʔaloy/</td>
<td>A A A</td>
</tr>
<tr>
<td>27</td>
<td>‘rain’</td>
<td>/kuja:n/</td>
<td>/kuja:n/</td>
<td>A A A</td>
</tr>
</tbody>
</table>

6.2 There were ten words (numbers 3, 7, 8, 10, 12, 14, 18, 19, 20, and 28 from Table 2) that exhibited lexical variation.

The ten words (35.71%) that exhibited lexical variation were unlike those words shown in 6.1; they were the same across two generations, i.e., Groups 2 and 3 only. A dash (⁻) was placed to show that there was some variation within Group 1, represented by the following:

Table 6. Pattern of lexical variation (⁻ A A)

<table>
<thead>
<tr>
<th>Group 1 (5-10 yrs. of age)</th>
<th>Group 2 (20-25 yrs. of age)</th>
<th>Group 3 (35-and-over yrs. of age)</th>
</tr>
</thead>
<tbody>
<tr>
<td>-</td>
<td>A</td>
<td>A</td>
</tr>
</tbody>
</table>
Table 7. The ten words with lexical variation of the pattern - A A (showing Groups 2 and 3 in detail)

<table>
<thead>
<tr>
<th>Number</th>
<th>Word</th>
<th>Moken</th>
<th>Age: groups 2 and 3</th>
<th>Pattern (of lexical variation)</th>
</tr>
</thead>
<tbody>
<tr>
<td>3</td>
<td>‘south wind’</td>
<td>/pajaʔ/</td>
<td>/pajaʔ/</td>
<td>- A A</td>
</tr>
<tr>
<td>7</td>
<td>‘against the wind’</td>
<td>/laja:n/</td>
<td>/laja:n/</td>
<td>- A A</td>
</tr>
<tr>
<td>8</td>
<td>‘light’</td>
<td>/tahiək/</td>
<td>/tahiək/</td>
<td>- A A</td>
</tr>
<tr>
<td>10</td>
<td>‘dew’</td>
<td>/wɪnmu:n/</td>
<td>/wɪnmu:n/</td>
<td>- A A</td>
</tr>
<tr>
<td>12</td>
<td>‘rain lightly’</td>
<td>/təlit/</td>
<td>/təlit/</td>
<td>- A A</td>
</tr>
<tr>
<td>14</td>
<td>‘summer wind’</td>
<td>/məluy/</td>
<td>/məluy/</td>
<td>- A A</td>
</tr>
<tr>
<td>18</td>
<td>‘north wind’</td>
<td>/tl əŋ/</td>
<td>/tl əŋ/</td>
<td>- A A</td>
</tr>
<tr>
<td>19</td>
<td>‘morning star’</td>
<td>/laluŋ/</td>
<td>/laluŋ/</td>
<td>- A A</td>
</tr>
<tr>
<td>20</td>
<td>‘rainy wind’</td>
<td>/balaːt/</td>
<td>/balaːt/</td>
<td>- A A</td>
</tr>
<tr>
<td>28</td>
<td>‘storm’</td>
<td>/ʨhuːt/</td>
<td>/ʨhuːt/</td>
<td>- A A</td>
</tr>
</tbody>
</table>

6.3 There were three distinct patterns observed among the ten words (numbers 3, 7, 8, 10, 12, 14, 18, 19, 20, and 28 from Table 2) that exhibited the pattern of lexical variation designated as: -A A in Tables 6 and 7.

Lexical variation in this study refers to a word that has either one or more variations in pronunciation, but they all have identical meaning. For these ten words (out of a total of 28 words), only Group 1 exhibited lexical variation (35.71%). There were three patterns of lexical variation. The patterns were: B A A (25%), A/B A A (7.14%), and B/C A A (3.57%).

From the patterns, A represents the lack of lexical variation, B represents an alternate word with identical meaning, A/B represents a portion of the group giving the same answer as the group with no lexical variation, and a portion of the group giving an alternate word with identical meaning, B/C represents two additional options other than the one given with no lexical variation.

The patterns are exhibited in Table 8 below:

Table 8. Patterns of lexical variation (B A A, A/B A A, and B/C A A)
Table 9. The ten words with lexical variation of the patterns B A A, A/B A A, and B/C A A (showing Group 1 in detail)

<table>
<thead>
<tr>
<th>Number</th>
<th>Word</th>
<th>Moken/Thai</th>
<th>Age: Group 1</th>
<th>Patterns of Lexical Variation</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>No. of Speakers</td>
<td>Percentage (18 Speakers = 100%)</td>
</tr>
<tr>
<td>3</td>
<td>‘south wind’</td>
<td>/pajaʔ/ /ʔanjin/</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>7</td>
<td>‘against the wind’</td>
<td>/la:j:n/ /ʔanjin/</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>8</td>
<td>‘light’</td>
<td>/tahiək/ /sæŋ/</td>
<td>3</td>
<td>16.665</td>
</tr>
<tr>
<td>10</td>
<td>‘dew’</td>
<td>/winmu:n/ /na:mkha:ŋ/</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>12</td>
<td>‘rain lightly’</td>
<td>/təlit/ /khuja:n/</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>14</td>
<td>‘summer wind’</td>
<td>/moɁuy/ /ʔanjin/</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>18</td>
<td>‘north wind’</td>
<td>/təl ʔŋ/ /ʔanjin/</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>19</td>
<td>‘morning star’</td>
<td>/lafuɁ/ /da:Ɂ/ /bituək/</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>20</td>
<td>‘rainy wind’</td>
<td>/bala:t/ /ʔanjin/</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>28</td>
<td>‘storm’</td>
<td>/tchu:Ɂ/ /pha:juʔ/</td>
<td>1</td>
<td>5.55</td>
</tr>
</tbody>
</table>

7. Summary, Discussion, and Recommendations

7.1 Summary

The present research included study of the Moken language across three generations. The adult and elderly groups did not exhibit any lexical change. Only the children’s group (Group 1) exhibited any lexical change. (The ten words mentioned in 6.3.) The change involved the use of borrowed words (from the Thai language) and alternate Moken words that differed from those used by the adult and older populations. The three borrowed words from Thai were ‘light’, ‘dew’, and ‘morning star’.

These three Thai words will be identified as B’ in Chart 2 to differentiate them from the Moken words designated as B.

The other seven words with lexical change were ‘south wind’, ‘against the wind’, ‘rain lightly’, ‘summer wind’, ‘north wind’, ‘rainy wind’, ‘storm’.

The children’s group exhibited the use of the three Thai words listed above (10.71%). They were: ‘light’, ‘dew’, and ‘morning star’. The other seven words listed above (25%) were: ‘south wind’, ‘against the wind’, ‘rain lightly’, ‘summer wind’, ‘north wind’, ‘rainy wind’, and ‘storm’, had lexical variation. The Thai word for ‘morning star’ was used in addition to two other Moken variations for ‘morning star’.

One observation regarding the three words in Thai which children used was that the children might not have been able to identify from the photographs exactly what was being depicted. The words ‘light’, ‘dew’, and ‘morning star’ were not easily identified by using photographs. For the word ‘light’, three children used a Thai word (/sæŋ/), and three children used a Moken word (/tahiək/). For the word ‘dew’, all children used a Thai word /na:mkha:ŋ/. For the word ‘morning star’, four children (out of six) used a Moken word that means ‘star’ (not ‘morning...
star’). This might be due to the fact that the four children did not know the specific word used in Moken to describe a particular star (‘morning star’). They used the general term for ‘star’ (/bituŋk/) instead. The other two children (out of six) did not know the term for ‘star’ in Moken at all. They used a Thai word that means ‘star’ (/daːɔ/) in place of (/bituŋk/).

Regarding the other seven words, which were: ‘south wind’, ‘against the wind’, ‘rain lightly’, ‘summer wind’, ‘north wind’, ‘rainy wind’, and ‘storm’, the children exhibited lexical variation. It can be observed that for the words that had a component of the word ‘wind’ along with a specific description of which kind of wind it was, the children used the Moken term ‘wind’ in general (/ʔanjin/) instead. This could be due to the fact that the children were too young to know that particular kind of ‘wind’ in Moken. For the word ‘rain lightly’, the children used a generic Moken word for ‘rain’ (/kʰuːŋ/) instead of /təlit/ in Moken, which means ‘rain lightly’. Again, this could be due to the possibility that the children were too young to be able to identify in Moken how to differentiate between types of ‘rain’. Finally, for the word ‘storm’, only one child could produce a Moken word (/tʃʰuːt/) that means ‘storm’. It so happened that this child was present when his father and mother were being recorded. He could possibly have heard/tʃʰuːt/ from his parents’ responses and answered using the same response as a result.

The other five children used a Thai word /pʰaːjuʔ/ for ‘storm’. This could also have been because the children were too young and had not learned the word in Moken /tʃʰuːt/ that means ‘storm’; therefore, they used a Thai word instead.

Another explanation could be that the children had acquired the Thai words from education received at school. This could have been the reason why they mixed in Thai words with their Moken vocabulary.

Finally, the words for which the children exhibited lexical variation were, for the most part, more abstract, necessitating the understanding of certain cognitive concepts. The children were so young that it is likely that they had not reached the mental stage of development at which those concepts would be understood.

The summary can be shown by means of Charts 1 and 2 as follows:
From Chart 1, 

\[ A \times A \times A \] equals 64.29\%
\[ B \times A \times A \] equals 25.00\%
\[ A/B \times A \times A \] equals 7.14\%
\[ B/CA \times A \] equals 3.57\%

From Chart 2, 

\[ A \times A \times A \] equals 64.29\%
\[ B \times A \times A \] equals 21.43\%
\[ B' \times A \times A \] equals 3.57\%
\[ A/B \times A \times A \] equals 3.57\%
\[ A/B' \times A \times A \] equals 3.57\%
\[ B'/CA \times A \] equals 3.57\%

7.2 Discussion

Education in the Thai language that has been offered at the school for Moken children as well as contact with the outside world (mostly language contact with tourists who use English or other languages) were most likely salient factors that influenced the lexical variation in the Moken language spoken by the Moken children. Most Moken adults have never received formal education; therefore, they have tended to preserve original words in the Moken language. The children were not bilingual or multilingual, but they could possibly become bilingual or multilingual in the future when they begin to expand their vocabulary in Thai or in English (or in other languages). In addition, when the Moken children have matured, they may find that it is necessary for them to use the Thai language (perhaps central Thai) in their everyday life. With regard to the adults and the older generation, they might continue using the original Moken words (unchanged), or they might start using some Thai words if they are influenced as well (lexical change). One could reasonably expect that lexical change will be inevitable as far as the Moken people are concerned.

Another observation was that age (and/or the combination of age and relocation) was a factor influencing lexical variation. Even though most Moken people (currently living on Surin Island, Phang Nga Province, in Thailand) relocated after the Tsunami of 2004, only the children exhibited lexical change. The adults have had some contact with outsiders as well, but they have retained their Moken vocabulary. Even though some of the adults may currently be able to communicate in Thai as the result of their relocation and contact with outsiders, they continue to use their Moken vocabulary without any apparent loss.
7.3 Recommendations

Due to time constraints, the present researcher used a sample limited to 28 tokens/words. It is recommended that more tokens be studied. In addition, for the same reason, the number of informants participating was limited to eighteen. More patterns might have been observed if more informants had participated. Therefore, with regard to further studies, it is recommended that more informants be selected.

The word list utilized in this study included two categories of words regarding nature—both were familiar to the Moken people. This might have been the reason why the research obtained results which showed that the informants were able to produce corresponding words in the Moken language. Any future word list could include other categories, such as time, names, colors, etc. The results might demonstrate an increased usage of the Thai language when words are not familiar to the Moken people, such as words for certain colors, or words related to time.

In addition, it might be beneficial to study the Moken people’s attitudes toward the use of Thai or other borrowed words. This might tend to assist in the preservation of the Moken language. Furthermore, studies that take gender into account could be explored.

8. Acknowledgement

I would like to show my gratitude to Assistant Professor Umaporn Sungkaman, PhD, Kasetsart University, for sharing her expertise and guidance during the course of this research. Any errors herein are the present researcher’s own and should not reflect negatively upon Dr. Sungkaman.
References


An Interplay of Psychosocial Factors and Work Conditions on Occupational Stress Among University Teachers in Pakistan and Finland

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Abstract

The study examines the interplay of psychosocial factors and work conditions on occupational stress among 531 university teachers in Pakistan and Finland with the help of a web-based questionnaire. Results from MANOVA revealed that good working conditions, social support at work, and promotion and development opportunities were rated as significantly better by the Finnish sample. Workplace bullying occurred considerably less often in Finland than in Pakistan. Male Pakistani teachers reported significantly higher levels of workplace bullying than any other group. Although the working conditions, social support, and promotion and development opportunities were better, and less bullying appeared in Finland than in Pakistan, the difference in stress symptoms between the two countries was not significant.

Keywords: development opportunities, occupational stress, social support, university teachers, workplace bullying, work conditions.
The Pragmatics of Discourse Markers: Turn-Taking Strategies

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Abstract

For non-native speakers of English, achieving natural fluency and flow in spoken language is often more difficult than writing. Oral fluency in a second language is often paired to cultural pragmatic understandings of speech and turn taking. As language teachers, the authors of this paper examine discourse markers usage between a non-native and native speaker of English through a case study interaction. Possible discrepancies between pragmatic understandings will be discussed and pedagogical implications will be examined.

Key words: Conversation analysis, discourse markers, linguistics, TESOL, pragmatics
“Showrooming”: A Multi-Channel Retail Phenomenon

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Abstract

“Showrooming” as a market phenomenon in multi-channel retailing has been growing in importance over the last few years. Consumers nowadays use the brick and mortar store to research about a product before purchasing it online. This leads to the offline stores being converted into showrooms for the online retailers. In this paper, our objective is to analyze multi-channel retailing under showrooming. We determine optimal pricing strategies for the online as well as the off-line retailer and the sales effort expended by the off-line retailer in explaining the product characteristics to the customers. We also analyze the viability of a click-and-mortar model as a strategy of the off-line retailer to counter the threat of showrooming. We determine market parameters under which shifting to a hybrid click-and-mortar model is more profitable for the off-line retailer.

Keywords: E-commerce, Multi-channel retail, Showrooming, Brick and mortar, Click and mortar, Game theory
Review of Diverse Capacity Development in Taiwanese Informal Indigenous Science Camp

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Abstract

The main purpose of this study is to explore the learning interest, learning effectiveness, and impact of the informal science education activities. Informal science education has a main focus on the culture, with the incorporation of science, mathematics, and lifestyle knowledge within the Indigenous culture. The science camp is designed with cultural emphasis for the Indigenous culture in Taiwan.

This study includes the comprehensive educational material for the following tribes: Paiwan, Rukai, Amis, Bunun, and Yami (Tao). Each of the materials has integrated different lifestyle experiences in to the science education activities, making it easier for the teachers to teach. From the designed activities it aims to challenge the streamline subjective knowledge system and lead the students to explore their own culture and heritage through the lifestyle knowledge and scientific evidences. The study is used to identify the interest level, learning effectiveness, and ability assessment in these activities.

The study is conducted on a four-year plan. The current phase is on the second half of the fourth year. This informal education has been implemented into 20 selected elementary schools. From August 2016 to February 2017, the study has been conducted in 12 schools with the total number of 307 students, including 166 male students and 141 female students.

The significance of the t-value difference is calculated based on the student’s interest and learning effectiveness from before and after the science camp. This shows that the student has demonstrated an increase in both interest in activities and learning effectiveness. From the studies of the 12 schools collected up to February 2017, each tribe has showed a special interest in specific subject. The 42 Amis students from the five Amis schools showed interests in “Amis Dance” class. For the 49 students from three Paiwan schools, they liked the “Paiwan Traditional Foods” best. “Super Hunter” was the favorite for the 30 students in the two Bunun schools. For the 26 Yami students in the two Yami schools they selected “Our Home” as their favorite subject.

Keywords: Informal Education, Assessment Model, Indigenous, Science Education

Introduction

The innovative approach to this new study is to break the norm of Indigenous Schools and promote “Health and Recreation Science Education” curriculum to each tribe. The purpose of the project is to integrate Indigenous culture with the method of science and recreation education. In these Indigenous Schools, original curriculums are designed with this concept combined with the local elders and talent participation.

Informal Education started as part of physical education such as baseball in elementary schools. Students learned to play baseball from the fun and educational curriculum designed based on the improvement of equipment and rules. Due to the remarkable success of this implementation, the education community has begun thinking about how to incorporate more of this informal education into different subjects. In the 2008 International Conference on Informal Science Education, it was emphasized to incorporate the Informal Education into the classrooms and resources. (2008 ICISE)

Informal Science Education has become a part of education reform that cannot be ignored. Learning is part of the everyday life, it could happen anywhere and anytime. Learning should be an accumulative practice process with knowledge, experiences, and learning to link both together. Through the
framework of the Informal Science Education it is able to provide learning resources to people of all ages such as, the zoo, aquarium, science park, and science museum. These public resources allows the community to be exposed to new knowledge and experiences, achieving the goals that are unreachable by formal education.

The implementation of the study is conducted in the form Indigenous Science Education Camp. The study subjects include Paiwan, Rukai, Amis, Bunun and Yami (Tao) tribes. The main emphasis of the curriculum activities are tribe to enhance the scientific knowledge and promote the healthy recreational lifestyle, combined with teaching modules that is catered to each tribe. The second emphasis is based on the Indigenous culture and tribal ecological environment and lifelong learning, promoting the public health with the application of “life, production, ecology” concept of the local elders and teachers. The schools are part of the cultural environment in which the elders are able to interact with children from the reproduction of traditional songs, dance and the ritual. With the combination of the lifestyle and ecological environment, educational goals are achieved. Not only is the integration of the traditional culture for Indigenous peoples in the activities of the subject planning, but also the promotion of popular science knowledge. From the “Entertaining Education” the indigenous students are able to learn from “science education” and “recreational education” through games and experiments that replaced formal education. The program not only increased a steady development of the learning interests for the students but also sustains the culture heritage outside the traditional curriculums.

The assessment tools for activities related to the science camp were designed to test if the students have in fact obtained the knowledge from the science camp. At the same time, this assessment format can be transferred to formal education because the education methods are integrated with both formal education and informal education. The goal is for this study to be considered for future standard curriculum assessments.

**Literature References and Method**

**Indigenous Peoples and Science**

Traditional culture of the Indigenous people is passed down through word of mouth and daily life practices of culture, songs, dances, and ceremonies. Indigenous people are proud of their lifestyle and culture. Each tribe has its own unique characteristics. Hunting plays an important role for males in Indigenous culture ceremonies. It has a special significance because the knowledge is formed from childhood memories with traditional knowledge. The relationship between the hunter and the earth is built on a deep mutual trust with the ecology and spirits of the land. Nature is the organic form of the sports field and the root of such creative cultural tradition. Another form of connection with the earth is through the form of dancing, locking hands in forms of circle, communicating emotions through movements and music. Dances move not only the body but also the soul, strengthening our minds and creating inner beauty. (Qi-Yang Lin, Ming-Hui Peng, Chun-Fa Tong, 2008). Relaxation and rest is achieved through the natural ways of traditional culture. For the Indigenous people, recreation is part of their culture.

Similar to the scientific knowledge, the Indigenous traditional culture contains multiple knowledge equivalents to different concepts of science. One example is the process of making Shell-flower leafMat. It not only requires mathematical principles of geometry and multiplication, but also extends to explore the internal structure of the Shell-flower leaves. For the Yami’s famous Tatala boats (wooden boats) not only take advantage of the expanding feature of the mulberry wood when in water, but also structured it like a puzzle to interlock creating a stronger boat design. Combined the both feature the Tatala boats proves buoyancy of wooden boats. Li-Yu Fu（傅麗玉 2004）explored the process of cooking yarn and dyeing yarn of the weaving culture for the Atayal tribe. The dye materials are all collected from natural plants which encourages the study for the changes of color in different dye. From these facts we are able to see the scientific wisdom of the Indigenous people specifically in their foods and textile. Jian-Lie Chen,（陳枝烈 2008）conducted field study and
interviews with the Paiwan culture to understand their lifestyle through trails, cultivation, soil conservation, hunting culture, and taro drying process. The study found correlation of Indigenous life experience to popular science and culture concept.

Combining all the studies and researches we can understand the way Indigenous people resourcefully use materials in their surrounding for convenience. The scientific views of the Indigenous people have a strong relation to how the Indigenous people view their natural habitat. More importantly, the Indigenous traditional knowledge is no different than popular science. Indigenous people have a long history interacting with the natural environment. They know how to effectively and efficiently use their surrounding resources, making life easier and more convenient. Even through the progress of technology, the Indigenous People still find the natural way to efficiently use their resources, making them an important cultural asset for science.

Using culture as a basis for teaching Indigenous students allows them to experience the lifestyle of their culture and also understand the scientific background to them. This not only allows the students to accept the modern teaching method but also creates a deeper impact. Science education in recent years has been influenced through diverse culture. It is emphasized that science education should help people from different background and different worldview to learn, and from that to appreciate the difference of the different culture, tribes, and even genders values (Reiss, 1993). Based on the “White Paper on Science Education” from the National Science Council (2003) its purpose is to cultivate and enhance the scientific literacy and carry out the potential of each student and to adapt science subjects to different individuals.

As the times evolve, the diverse education concept has gradually become the mainstream concept for education. Education methods compared with formal education is forced to innovate and change. Fun physical education is a clear evident that is different from traditional classroom teaching. Jin-Yi Hong (洪進益, 2009) pointed out that fun physical education has increase interest and the diverse teaching method has replaced formal education. It is intriguing that in the set courses, teachers learn to take into account for fun and learning. An example is the curriculum design for table tennis. When the rules of the sport are being taught it is also designed as a game with different levels. To avoid any sense of rejection due to unfamiliarity, the difficulty level increases as the teaching progress. Students can also be divided into teams based on their skills level, giving them a different challenge level for their skills. From the fun games students enhanced their learning interests towards the physical education. Using the same education concept, science education camp utilizes the informal education system. Our team has successfully designed games that combine scientific knowledge and Indigenous traditional knowledge, creating an excellent learning environment for the Indigenous students. The project provides positive learning incentives and allows students to recognize the fun in science knowledge. With the combination of formal and informal education, the goal is to effectively promote the learning interest and increase scientific knowledge for the Indigenous students.

Indigenous cultural education has gained more interest and attention in related fields throughout the years. A study by Guang-Ding Tang (譚光鼎等, 1998) points out that school reforms should not just include the element of different races, but also help students understand how knowledge is structured. Most of the existing curriculums are still following strict rules of the middle-class culture, which lays heavy emphasis of the middle-class thinking and behavior models. It is harmful with students from different background to engage in such curriculum. Besides the promotion of Indigenous language education and culture education, the review of all teaching materials for all grades should be incorporated with diverse education as their priority in science education. Moderate materials should be added with Indigenous related science education. Upholding the concept of diverse education course design can promote the harmony of tribes, encourage understanding, and communication. The concept of diverse education can be achieved when the Indigenous cultural science education is preserved.

**Informal Education**

Informal education started around the 1960s by an English education scholar. By the 1970s, American scholars gradually promoted the so-called “Open Education”. Informal education has very similar
core concept as the open education. Compared to regular learning, informal education breaks the barriers of a classroom and allows the teacher and students to explore diverse and flexible learning opportunities. Informal education focuses on the comprehensive development of the students and stimulates the students to take initiative to learning.

In the 2011 International Conference on Informal Science Education, many scholars points out that learning science is not strictly confined by the rules of the education planning. Informal education such as science camp, visiting museums, attending workshops, are all part of the informal education. Apart from the participation of the teachers and students, people from different age groups and community are encouraged to use these resources to learn outside the classroom. Compared with formal education in the school systems, Informal education emphasizes “explore, situation, and games” (National Research Council, 2009).

Informal education is often applied in the science education. Jia-Yu Huang (黃嘉郁 2000) indicates that the implementation of science education can be conducted through both formal and informal education. To achieve the goals of science education, classrooms can provide the formal learning and informal education can be achieved outside the classroom with public resources. In a set situation, structured theme can be incorporated to learn science education (such as informal education). As for uncertain situation, students can learn based on random structured theme and in everyday life based on their own interest of learning. It is still an important topic to integrate the resources of formal and informal education.

In a number of scientific studies regarding education, informal education is found to be supportive of formal education. Informal education is focused on active, endless, and comprehensive learning of the individuals. Through the creation of problem solving, operation, and observation, students can find motivation to learn in these informal education environments. As the students generate curiosity and cultivate scientific literacy, they can strengthen the initiative to learn science on their own (Kelly, 2000, Falk, Storksdieck, &Dierking, 2007 ; Stocklmayer, Susan M., Rennie, Léonie J. and Gilbert, JohnK., 2010). Overall, the interactive learning environment from informal science education can cultivate hands-on skills for students. The “how to learn” and “learn by doing” from formal education is complemented by informal education (Zi-Li Zhang, Huai-ZiXin, 2008). At the same time, both educations promote lifelong learning as the ultimate goal of education. Therefore, the integration of formal and informal education is more comprehensive for students of all ages.

A study from Zhe-Di Li (李哲迪 2009) shows student to have less interest in formal science education, which indicates the impact of informal education where students showed more interest. The study is targeted on TIMSS, PISS, and other international science education researches. One of the possibilities is that informal education allows the students to choose the learning contents and explore based on true science, which cannot be found in textbooks in formal education. More importantly, there was no pressure to perform in schools in informal education. Scholars, Rui-Zhou Zheng, Zhen-Fang Hong, and Tai-Zhu Huang (鄭瑞洲, 洪振方, 黃台珠, 2011) suggested that the construction of informal education is to promote science learning interest and provide hands-on activities that are fun and educational. Once situational interest is stimulated from the activities, the initiative for learning science and pursuing a career in science is higher. Another study points out that the results of informal education can be very diverse, especially with hidden results such as attitude, emotions, faith, and moral values (Hooper-Greenhill, 2007). Thus, the interest gained from the informal education can have a deep impact for the student’s future learning, development, and career choices (Stocklmayer et al., 2010).

In conclusion, Indigenous students often reject and perform poorly in the formal science education setting. Sometimes it can lead to sense of disgust which hinders them to continue learning science knowledge. By using fun and creative learning, the informal education game designs allows students to learn from playing and strengthen their learning interests. From there, the students can extend their learning interest to formal education and learning.
Diverse Assessment

The term “Assessment” is extended from the system of science education. According to the United States “National Science Education Standards”, the assessment standards provide criteria against which to judge the quality of assessment practices. They provide students with feedback on how well they are meeting expectations, teachers with feedback on how well their students are learning, school districts with feedback on the effectiveness of their teachers and programs, and policy makers with feedback on how well policies are working. This feedback in turn stimulates changes in policy, guides the professional development of teachers, and encourages students to improve their understanding of science (National Research Council, 1996). The term “Diverse Assessment” can be defined as the basis for teaching objectives. Data can be collected as comprehensive information from the student’s learning process, and then turn into results that are appropriate for interpretation. This could stimulate each student to carry out more meaningful learning and promote more effective teaching in dynamic courses. Diverse assessment can be defined based on the education goal and content. Conclusion and interpretation can be formed based on the comprehensive data collection in the reality of the learning process (Pei-Jun Chen, 2002).

Assessment is determined teaching objective with the understanding of student experiences and use of appropriate teaching methods to achieve teaching goals. The main quality is to compare objectives with results, then modify teaching methods from the data (Jing-Ku Zhang, 1996). The practice of diverse assessment has greatly helped students learn in diverse settings and provides great interaction for the teachers and students (Hui-Mei Zhuang, 2000). Learning Assessment should pay attention to the process of orientation, knowledge structure, learning strategies, error analysis, and other cognitive assessment process (Jian-Ping Lin, 1996). Diverse Assessment refers to a variety of assessment methods to identify students’ learning outcomes, teachers/schools evaluations, reward, and punishment. These can be approached from a variety of perspectives. Multiple assessment methods can be used to measures and carry out teaching evaluation. Traditional assessment has transformed from the singular structure of “teach, learn, and then test” to parallel processing of all “teach, learn, and test” at the same time (Puckett & Black, 1994).

Diverse intelligence has two sides to the teaching and assessment. It doesn’t require extra time for testing in the teaching process, but rather uses the tests as part of the learning process. Students can hardly separate the difference of their learning experiment from the assessments. When students participate in these activities they no longer view assessment as a scary judgement day but another learning opportunity (Armstrong, 1994). Pei-Fen Sun (孫佩芬, 2007) has found in her student the importance of each individual student’s learning attitude change in diverse assessments. The differences of each student can be used to provide more appropriate activities to increase development based on their skills. Kun-Chong Li (李坤崇, 2002) on the other hand, thinks that diverse is defined by professionalism, connotations, process, methods, results, and personnel. Yao-Ming Wu (吳耀明, 2010) pointed out that assessment is used to strengthen and expand the student’s learning, and not focused on their mistakes or failure. The two sides to the assessment and teaching can be diversified in the designs of the assessment questions. Incorporating moderate assessment in the teaching process can increase the student’s learning interest and learning outcome. Cui-Hua Dai (戴翠華, 2000) found the use of diverse assessment in natural science not only increases the student’s learning interest but also promotes the teachers’use of creative strategy for teaching, which is helping the teachers in curriculum design. Mei-Zhen Chen (陳美珍, 2003) has confidence in diverse assessment in providing the comprehensive assessment standard. Both the interaction from teachers and students has provided positive feedbacks. It not only helped younger students explore nature but also learn from it. Shu-Ping Wang (王淑萍, 2003) found a positive increase in student learning attitude from implementing the diverse assessment. Students had positive feedback for the assessment and increased their learning interest. Sheng-Yu Guo (郭生玉, 2002) considers “Diverse Assessment” as a different approach for assessment. It provided feedback for teachers to make better teaching.
decisions and help students solve any difficulties in the learning process. From that, the students can cultivate well-rounded development in various subjects and achieve maximum goal for learning.

Many scholars (Wen-Zhong Wang, 2008; Wen-Ci Jiang, 2000; Kun-Zong Li, 2002) indicates that the following should be considered when implementing teaching assessments:

1. Assessment must relate to educational goal.
2. Assessment contents must be practical.
3. Assessment should consider areas of cognition, interest, and skills.
4. Assessment method must be diversified.
5. Assessment timing should consider both formative and summative.
6. Assessment must be informative to educational purpose.

Education is a process of interaction from teachers and students participation. Assessment is the use of scientific method and technique to collect the data of student learning behavior. By comparing the teaching objective with the performance of the students, analysis and research can be conducted to improve the system. Assessment plays a key role in the teaching transformation, but it is not the conclusion of the teaching process (Mao-Fa Jian, 2002). Assessments are not merely a form of test or quiz, but a feedback for the teachers as a basis for modifying teaching methods and reinforcements based on need, meeting the needs of the teaching objectives. Therefore, any kind of teaching method should be paired with assessment to understand its effectiveness and implementation of teaching objectives. Through the feedback of the teaching effectiveness, discussion can be formed based on teaching objectives. The main purpose is to understand the degree of teaching objectives. Teachers must design different assessment methods based on different objectives. Most of the time, assessment is considered to be the last section of the teaching process, however, it is part of the teaching implementation, which makes it an inseparable part of the teaching process.

The development of education assessments has gone beyond just the paper and pencil in a test format. With the diverse assessment methods students are able to learn more effectively from diverse methods. The importance of the informal education is to provide more learning opportunities outside of the formal learning. From science camps to visiting science museums, students can utilize informal education and change their attitudes towards learning. The goal of our education assessment is to advance the student’s learning ability.

**Research Method**

**Research Structure**

Paiwan, Rukai, Amis, Bunun, and Yami (Tao) tribes are the main schools studied for this research. In accordance with the “Indigenous Priority Schools” of the annual compilation and publication from the Indigenous Council in Taiwan (Indigenous Education Statistic Survey Report).

The main core of the “Informal Indigenous Science Education Camp” is to work with the Paiwan, Rukai, Amis, Bunun, and Yami (Tao) tribes to develop educational activities. Each tribe has four curriculums that relates to each of their own unique culture and scientific knowledge. The curriculums are catered to students of each tribe. The form of class is transformed into activities and games in the science camp.

The main participating students are grades three through sixth (Non-Indigenous students are also allowed to participate). Each subject is taught by four teachers from each school and supported by local elders and culture workers. Our team provides the activities for curriculums, reference materials for teachers, posters and textbooks as teaching materials. The schools act as co-sponsors in providing the event space, equipment (sound system, projects, etc.), and facility support.

The main purpose of “Informal Indigenous Science Education Camp” is to understand the before and after learning interest of the Indigenous students. Research structure is shown in Figure-1:
Research Subjects

The subject of study for “Informal Indigenous Science Education Camp” includes students grade three to six from the Indigenous Priority Schools, along with teachers of the school and elders in the tribe. The study has been conducted 12 camps since August 1st, 2016 to February 28th, 2017. Of the 12 schools, there were 5 Amis schools, 2 Bunun schools, 3 Paiwan schools, and 2 Yami (Tao) schools, with a total of 307 participating students.

Research Process

The focus of the Informal Indigenous Education is to promote the Indigenous science knowledge. The first phase of the research process is conducted through science camps, with Indigenous students as the main participant. The subjects are taught by teachers of each school and local elders. The result is collected through the observation of student and teacher participation, student reactions, unstructured interviews, and before/after surveys. The research process is shown in Figure-2:
Research Tools and Data Processing Method

This study includes participant observation and interviews during and after the science camps. Date and surveys are collected and calculated into results and corrected through feedbacks.

1. Participant Observation

Within the natural context of the science camp, participants are observed and assessed through the application and effectiveness of teaching and learning process. The implementation of Indigenous culture is observed through the dynamic situational learning and performance of the students.

2. Interviews

Interviews are conducted randomly with science camp speakers, school teachers, and tribal elders. The emphases of the interviews are to understand satisfaction and benefits of the curriculums with the teachers. Interviews are recorded by writing.

3. Assessment Survey

The survey questions are modified based on the Linnenbrink-Garcia, et al. (2010) “Educational Interest Measurement” to assess the interest levels before and after the science camp for the Indigenous students. Each survey is taken by science camp participants anonymously. Based on the 5-
level Likert Scale using the options for “Strongly Agree”, “Agree”, “Neither Agree or Disagree”, “Disagree”, and “Strongly Disagree”.

Results

Before and after the science camps, situational interest and learning effectiveness surveys were collected. Due to the difference in curriculum design for each tribe, the results of the first 5 questions are differed by each tribe. The survey also includes 5 science inquiry assessment and 10 situational interests. A total of 307 surveys were collected by 12 schools. The before and after data is collected and processed and analyzed through SPSS17.0 software. In addition, surveys were designed for each of the tribal curriculums. After each class, the survey aims to assess the student’s interest and growth of knowledge.

1. Student Number by Grades

12 Schools in total was observed since the implementation up to February 28, 2017. The five schools with Amis students had 7 third grader, 35 fourth grader, 39 fifth grader, 33 sixth grader, totaling in 114 students. Bunun had two schools with 16 fourth grader, 24 fifth grader, 22 sixth grader, and totaling in 62 students. Paiwan had three schools with 13 third grader, 23 fourth grader, 23 fifth grader, and 23 sixth grader, totaling in 82 students. Yami (Tao) had two schools that had 5 third grader, 14 fourth grader, 10 fifth grader, 20 sixth grader, totaling in 49 students. The following Chart-1 shows the distribution of students in each tribe by grades:

<table>
<thead>
<tr>
<th>Tribe</th>
<th>3rd Grader</th>
<th>4th Grader</th>
<th>5th Grader</th>
<th>6th Grader</th>
<th>Total Students</th>
</tr>
</thead>
<tbody>
<tr>
<td>Amis</td>
<td>7</td>
<td>35</td>
<td>39</td>
<td>33</td>
<td>114</td>
</tr>
<tr>
<td>Paiwan</td>
<td>13</td>
<td>23</td>
<td>23</td>
<td>23</td>
<td>82</td>
</tr>
<tr>
<td>Bunun</td>
<td>0</td>
<td>16</td>
<td>24</td>
<td>22</td>
<td>62</td>
</tr>
<tr>
<td>Yami</td>
<td>5</td>
<td>14</td>
<td>10</td>
<td>20</td>
<td>49</td>
</tr>
<tr>
<td>Total</td>
<td>25</td>
<td>88</td>
<td>96</td>
<td>98</td>
<td>307</td>
</tr>
</tbody>
</table>

2. Situational Interest Differences

Based on the before and after survey for situational interest, t-test analysis is conducted (Chart-2). The average value for before is 3.42 and 3.77 for the after survey. In general, student’s situational interest after the camp is higher than the situational interest for before. This shows a significant increase in situational interests.

<table>
<thead>
<tr>
<th>Factor</th>
<th>Test Number</th>
<th>Before Average</th>
<th>Before Standard Deviation</th>
<th>After Average</th>
<th>After Standard Deviation</th>
<th>t-statistic</th>
<th>Significance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Situational Interest</td>
<td>307</td>
<td>3.42</td>
<td>0.83</td>
<td>3.77</td>
<td>0.75</td>
<td>8.09</td>
<td>***</td>
</tr>
</tbody>
</table>

***p<0.001

3. Learning Effectiveness Differences

Based on the before and after survey for learning effectiveness, t-test analysis is conducted (Chart-4). The average value for before is 2.67 and 3.80 for the after survey. In general, student’s learning effectiveness after the camp is higher than the learning effectiveness for before. This shows a significant increase in learning effectiveness.
4. Favorite Subjects by Tribe

From the studies of the 12 schools collected up to February 2017, each tribe has showed a special interest in specific subject. The 114 Amis students from the five Amis schools voted favorite subject in “Amis Dance” class. For the 62 students from three Paiwan schools, they voted favorite subject for the “Paiwan Traditional Foods” best. “Super Hunter” was the favorite by the 82 students in the two Bunun schools. For the 49 Yami students in the two Yami schools they selected “Our Home” as their favorite subject.

Chart-6 Statistics for Favorite Subjects by Tribe

<table>
<thead>
<tr>
<th>Tribe</th>
<th>Subject Names</th>
<th>Favorite by student</th>
</tr>
</thead>
<tbody>
<tr>
<td>Amis</td>
<td>Amis Dance</td>
<td>42</td>
</tr>
<tr>
<td></td>
<td>The Ocean and Me</td>
<td>36</td>
</tr>
<tr>
<td></td>
<td>When hakhak becomes toron</td>
<td>28</td>
</tr>
<tr>
<td></td>
<td>Wild Vegetation Republic</td>
<td>8</td>
</tr>
<tr>
<td></td>
<td><strong>Traditional Paiwan Cuisine</strong></td>
<td><strong>49</strong></td>
</tr>
<tr>
<td></td>
<td>Paiwan Hunting</td>
<td>25</td>
</tr>
<tr>
<td></td>
<td>Just Recreation</td>
<td>5</td>
</tr>
<tr>
<td>Paiwan</td>
<td>Paiwan Traditional Costume</td>
<td>3</td>
</tr>
<tr>
<td>Bunun</td>
<td><strong>Super Hunter</strong></td>
<td><strong>30</strong></td>
</tr>
<tr>
<td></td>
<td>Bunun Traditional Gyro</td>
<td>22</td>
</tr>
<tr>
<td></td>
<td>Sound of Nature</td>
<td>7</td>
</tr>
<tr>
<td></td>
<td>Bunun Icon Calendar</td>
<td>3</td>
</tr>
<tr>
<td>Tami (Tao)</td>
<td><strong>Our Home</strong></td>
<td><strong>26</strong></td>
</tr>
<tr>
<td></td>
<td>Boat Culture</td>
<td>18</td>
</tr>
<tr>
<td></td>
<td>Island Plants</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>Rhythm of Waves</td>
<td>2</td>
</tr>
</tbody>
</table>
Six Forces Analysis Chart

1) Categorized by Tribe

Chart* Correct Ratio of Educational Goals by Tribe

<table>
<thead>
<tr>
<th>School</th>
<th>Item</th>
<th>A.Memory</th>
<th>B.Understanding</th>
<th>C.Application</th>
<th>D.Analysis</th>
<th>E.Evaluation</th>
<th>F.Creativity</th>
<th>Total</th>
<th>Sequence</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yami</td>
<td>0.68</td>
<td>0.67</td>
<td>0.74</td>
<td>0.03</td>
<td>0.36</td>
<td>-</td>
<td>0.66</td>
<td></td>
<td>C &gt; A &gt; B &gt; E &gt; D</td>
</tr>
<tr>
<td>Paiwan</td>
<td>0.62</td>
<td>0.57</td>
<td>0.87</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>0.61</td>
<td></td>
<td>C &gt; A &gt; B</td>
</tr>
<tr>
<td>Bunun</td>
<td>0.67</td>
<td>0.56</td>
<td>-</td>
<td>0.20</td>
<td>-</td>
<td>-</td>
<td>0.60</td>
<td></td>
<td>A &gt; B &gt; D</td>
</tr>
<tr>
<td>Amis</td>
<td>0.74</td>
<td>0.56</td>
<td>-</td>
<td>0.38</td>
<td>0.53</td>
<td>-</td>
<td>0.66</td>
<td></td>
<td>A &gt; B &gt; E &gt; D</td>
</tr>
<tr>
<td>Total</td>
<td>0.69</td>
<td>0.59</td>
<td>0.84</td>
<td>0.28</td>
<td>0.51</td>
<td>-</td>
<td>0.64</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Note: - represents lack of questions in subject.

Graph*Radar Map of Goals Correct Ratio for Educational goals

From Chart* we can understand the correct ratio for educational goals based on tribes. For the Yami tribe, Application questions had the highest correct ratio, followed by memory, understanding, evaluation, and analysis. For the Paiwan tribe, Application questions also had the highest correct ratio, followed by memory, and understanding. For the Bunun tribe, Memory questions had the highest correct ratio, followed by understanding and analysis. For the Amis tribe, Memory questions had the highest correct ratio, followed by understanding, evaluation, and analysis.

From looking at the correct ratio for educational goals, the memory questions had the highest scores for the Amis tribe, followed by Yami, Bunun, and then Paiwan. For the understanding questions Yami tribe had the highest scores followed by Paiwan. Amis and Paiwan both scored last for the understanding questions. Paiwan tribe scored highest for the Application questions, followed by
Yami. Amis tribe had the highest score for Analysis questions, followed by Bunun and Yami tribe. For the evaluation questions, Amis tribe also scored the highest, followed by Yami tribe.

In General, Yami and Amis tribe scored the best with 66% correct ratio. Paiwan had 61% correct ratio and Bunun had 60% correct ratio.

2) Categorized by Schools

Chart* Correct Ratio of Educational Goals for Yami Schools

<table>
<thead>
<tr>
<th>School</th>
<th>A.Memory</th>
<th>B.Understanding</th>
<th>C.Application</th>
<th>D.Analysis</th>
<th>E.Evaluation</th>
<th>F.Creativity</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Iraraley Elementary School</td>
<td>0.62</td>
<td>0.61</td>
<td>0.70</td>
<td>0.00</td>
<td>-</td>
<td>0.30</td>
<td>0.60</td>
</tr>
<tr>
<td>Dong-Qing Elementary School</td>
<td>0.73</td>
<td>0.74</td>
<td>0.78</td>
<td>0.05</td>
<td>0.42</td>
<td>-</td>
<td>0.72</td>
</tr>
<tr>
<td>Total</td>
<td>0.68</td>
<td>0.67</td>
<td>0.74</td>
<td>0.03</td>
<td>0.36</td>
<td>-</td>
<td>0.66</td>
</tr>
</tbody>
</table>

Note: - represents lack of questions in subject.

Graph* Radar Map of Goals Correct Ratio for Yami Schools

From Chart* we can see that Dong-Qing Elementary school had a higher correct ratio. Based on each category, Dong-Qing also had a higher score than Iraraley. Overall, the score for Analysis questions both scored the lowest.
Chart* Correct Ratio of Educational Goals for Yami Schools

<table>
<thead>
<tr>
<th>School</th>
<th>A. Memory</th>
<th>B. Understanding</th>
<th>C. Application</th>
<th>D. Analysis</th>
<th>E. Evaluation</th>
<th>F. Creativity</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Shi-Men Elementary School</td>
<td>0.47</td>
<td>0.45</td>
<td>0.80</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>0.48</td>
</tr>
<tr>
<td>An-Shuo Elementary School</td>
<td>0.83</td>
<td>0.77</td>
<td>1.00</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>0.81</td>
</tr>
<tr>
<td>An-Shou Xin-Hua Campus</td>
<td>0.72</td>
<td>0.69</td>
<td>0.91</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>0.72</td>
</tr>
<tr>
<td>Total</td>
<td>0.62</td>
<td>0.57</td>
<td>0.87</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>0.61</td>
</tr>
</tbody>
</table>

Note: - represents lack of questions in subject.

Graph* Radar Map of Goals Correct Ratio for Paiwan Schools

From Chart* we can see that Shi-Men Elementary school had the highest score for memory questions, followed by understanding questions. Both memory and understanding questions scored below 50%. For An-Shou elementary school, Application had the highest score with 100%, followed by memory (83%) and understanding (77%). For the An-Shou Xin-Hua Campus, Application scored highest, followed by memory and understanding.

Based on the correct ratio for educational goals, An-Shou scored highest in memory questions, followed by An-Shou Xin-Hua Campus, and then Shi-Men. For the understanding questions, An-Shou had the highest scores, followed by An-Shou Xin-Hua Campus, and then Shi-Men. For the Application questions, An-Shou had the highest scores, followed by An-Shou Xin-Hua Campus, and then Shi-Men.

In general, An-Shou had the highest score of 81%, followed by An-Shou Xin-Hua Campus (72%), and then Shi-Men (48%).
Chart* Correct Ratio of Educational Goals for Bunun Schools

<table>
<thead>
<tr>
<th>School</th>
<th>Item</th>
<th>A.Memory</th>
<th>B.Understanding</th>
<th>C.Application</th>
<th>D.Analysis</th>
<th>E.Evaluation</th>
<th>F.Creativity</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Shuang-Long Elementary School</td>
<td>0.82</td>
<td>0.68</td>
<td>-</td>
<td>0.27</td>
<td>-</td>
<td>-</td>
<td>0.73</td>
<td></td>
</tr>
<tr>
<td>Fa-Zhi Elementary School</td>
<td>0.63</td>
<td>0.50</td>
<td>-</td>
<td>0.21</td>
<td>-</td>
<td>-</td>
<td>0.51</td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td>0.67</td>
<td>0.56</td>
<td>-</td>
<td>0.20</td>
<td>-</td>
<td>0.60</td>
<td></td>
</tr>
</tbody>
</table>

Note: - represents lack of questions in subject.

Graph*Radar Map of Goals Correct Ratio for Bunun Schools

From Chart* we can see that Shuang-Long elementary school had the highest correct ratio of 73%. Fa-Zhi elementary school had a lower score of (51%). Shuang-Long had the higher score for all the memory, understanding, and analysis questions. For both schools, Analysis questions scored lowest with less than 30%.

Chart* Correct Ratio of Educational Goals for Amis Schools

<table>
<thead>
<tr>
<th>School</th>
<th>Item</th>
<th>A.Memory</th>
<th>B.Understanding</th>
<th>C.Application</th>
<th>D.Analysis</th>
<th>E.Evaluation</th>
<th>F.Creativity</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Zhang-Yuan Elementary School</td>
<td>0.83</td>
<td>0.62</td>
<td>-</td>
<td>0.52</td>
<td>0.49</td>
<td>-</td>
<td>0.72</td>
<td></td>
</tr>
<tr>
<td>Du-Lan Elementary School</td>
<td>0.68</td>
<td>0.52</td>
<td>-</td>
<td>0.33</td>
<td>0.36</td>
<td>-</td>
<td>0.60</td>
<td></td>
</tr>
<tr>
<td>Yong-Feng Elementary School</td>
<td>0.82</td>
<td>0.63</td>
<td>-</td>
<td>0.58</td>
<td>0.82</td>
<td>-</td>
<td>0.74</td>
<td></td>
</tr>
<tr>
<td>Jing-Pu Elementary School</td>
<td>0.75</td>
<td>0.60</td>
<td>-</td>
<td>0.14</td>
<td>0.49</td>
<td>-</td>
<td>0.67</td>
<td></td>
</tr>
<tr>
<td>Yong-An Elementary School</td>
<td>0.76</td>
<td>0.51</td>
<td>-</td>
<td>0.36</td>
<td>0.67</td>
<td>-</td>
<td>0.65</td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td>0.74</td>
<td>0.56</td>
<td>-</td>
<td>0.38</td>
<td>0.53</td>
<td>0.66</td>
<td></td>
</tr>
</tbody>
</table>

Note: - represents lack of questions in subject.
Graph*Radar Map of Goals Correct Ratio for Amis Schools

From Chart* we can see that Zhang-Yuan elementary school had the highest score in memory, followed by understanding, analysis, and evaluation. For Du-Lan elementary school had the highest score in memory, followed by understanding, evaluation, and analysis. For Yong-Feng elementary school, they scored highest in memory and evaluation questions, followed by understanding and analysis. For Jing-Pu elementary school, the highest scores were among the memory questions, followed by understanding, evaluation, and analysis. For Yong-An elementary school, they scored highest in memory questions, followed by evaluation, understanding, and analysis.

From looking at the memory questions, Zhang-Yuan scored the highest, followed by Yong-Feng, Yong-An, Jing-Pu, and then Du-Lan. For the understanding questions, Yong-Feng scored the highest, followed by Zhang-Yuan, Jing-Pu, Du-Lan, and Yong-An. For the analysis questions, Yong-Feng scored the highest, followed by Zhang-Yuan, Yong-An, Du-Lan, and Jing-Pu. For the evaluation questions, Yong-Feng scored the highest again, followed by Yong-An, Zhang-Yuan, Jing-Pu and then Du-Lan.

In general, Yong-Feng had the highest correct ratio of 74%, followed by Zhang-Yuan (72%), Jing-Pu (67%), Yong-An (65%) and Du-lan (60%)

Discussion

The Indigenous students that participated in this science camp study of informal education has demonstrated a deeper understanding of knowledge and found learning through games and designed curriculums. The camp was conducted throughout the school campus and through the cultural knowledge and hands-on experiments students learned through informal education. From the statistics collected, we can understand that the students had significant increase in learning interest and also found that from after the creative science camps students had intrinsic motivation for learning. This is predicted to stimulate their interest in general science knowledge.

Many challenges still exist due to the variation of knowledge in the teachers and elders in each community. Through each course, the moderators were selected from local teachers and elders in the tribe. However, from the conducted interviews and observation of the activities, we found the teachers engaging with student’s learning experience and were able to relate and interact. From their professional teaching background they were able to understand the goal of the project and personalized each subject as their own scientific knowledge to teach to the students. Elders in the
community were well-versed in their cultural heritage and experiences, which makes up for what the teachers lack and provide help to the hands-on operations of the activities.

Many of the participation schools have found a new direction and focus through the science camps. Parts of the teachers are also willing to develop new curriculums that are more intriguing and fun based on the creative curriculums of this study.

Traditional Indigenous knowledge contains a rich scientific knowledge that is not much different from the general science education. Informal education is not only a science camp but also a project that can be extended to every level of the general public. The program not only informs people of the Indigenous culture, but also provides hands-on experience for a deeper understanding of our environment and science. The informal education increases student learning interest and confidence which effectively enhance the student’s scientific inquiry attitude. From these process students have a better understanding of the scientific knowledge application in everyday life, which is the ultimate goal to achieve better learning for every student.
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The Ways of Increasing Profitability and Competitiveness of Farming in The Caucasus Region on Example of Georgia Republic

Nino Rukhaia-Mosemgvdlishvili, Ivane Javakhishvili Tbilisi State University, Georgia

Abstract

Georgia was among the first republics of the FSU to proclaim independence in 1991. During the four years of upheaval that followed, the country experienced civil unrest and internal conflicts, in particular the war in the Abkhazian region, which created serious refugee problems and closure of its trade routes. Prior to independence, the Georgian economy had been closely integrated with that of the Soviet Union with trade accounting for an estimated 40% of GDP, and nearly all exports directed to and three quarters of imports coming from the Soviet republics. The industrial sector accounted for about one third of the economy and although Georgia lacked cheap sources of energy, it produced steel pipes, locomotives, and other energy-intensive products for export. The competitiveness of Georgia's heavy industry was dependent on the supply of natural gas from Turkmenistan at artificially low prices and on inflated prices for final products.

After independence in 1991, the economy collapsed under the impact of civil war and the loss of preferential access to Former Soviet Union (FSU) markets- imports fell by 70% and exports by 90%.

The dissolution of the FSU had serious effects on the Georgian economy: the price of gas and oil rose dramatically in the early 1990s, making Georgia's heavy industry uncompetitive and halting production in Georgia's industrial centers. In addition, Russia's economic problems led to a collapse of demand for Georgia's agricultural goods (in which it had comparative advantage), and tourism, formerly an important source of income, virtually disappeared. Thus, like other CIS countries, Georgia had thousands of unemployed engineers and scientists but no industry that could employ them. In response, large numbers of skilled people withdrew from the market, many becoming attached to low productivity activities in agricultural and rural areas, some resorted to the public sector, and others migrated abroad. By 1994, Georgia's GDP was estimated at 17% of its 1990 level the greatest fall among the countries of the FSU. Because of big stagnation, government's attempts restoration economy was not very successful. Progress is seen but the level of output in 2007 was still only an estimated 70% of the 1990 level, in stark contrast to the performance of most of the CIS countries.

Many economists have argued that the international fragmentation of production should bring significant benefits to developing countries. When production of a good is split globally, tasks within the supply chain are dispersed across countries based (in part) on comparative advantage. This should promote trade between industrial and developing countries, since comparative advantage differs more between these groups than between industrial countries. The gains from trade should expand for all countries, since tasks within the production process are allocated more efficiently. For developing countries, the scope of production should also expand to include relatively high tech- or high skill-intensive products, since they can specialize in specific tasks within the production chain.

Georgia's economy has undergone significant structural change since independence. Around 15 years ago, shares of agriculture, industry, and services in GDP were more or less evenly split. The share of agriculture has since declined significantly and stood at an estimated 10.3% of GDP in 2008, although the sector remains critical for the Georgian economy. Over 53% of the labor force (including wage labor and the self-employed) depend on agriculture for their livelihood and agriculture accounts for 18% of exports although Georgia's net trade in agriculture and food products remains negative. Real agricultural output declined by 1% whereas overall GDP growth averaged 9.7% between 2003 and
2007, led by a number of sectors, including trade services, construction, financial intermediation and manufacturing. According to the World Bank, productivity, measured in terms of value added per employee, has improved in industrial and service sectors but not in agriculture, where there is accumulated major number of labor in Georgia. The Government and the international donor community have devoted considerable resources and efforts to improve productivity in agriculture, but the benefits have so far been negligible on overall productivity, for which Georgian data appears to be lacking.

Agricultural sector is one of the most important economic directions which are considered to be Georgia's comparative advantage and since country’s independence this sector has been experiencing a recession which caused decrease in production efficiency, the impoverishment and decapitalization of the agricultural sector. This sector has often been the subject of interest of politicians. State leaders at different times used to offer different types of assistance to peasantry farms. However, it is doubtless that chaotic and one-time assistance was not able to manage Georgia’s agricultural development. The geographical location gives a good environment for plant growing and livestock. But Georgian farmers can use this opportunity only with correct politics because there are a lot of problems, in the sector, which are making the field unprofitable. Among the reasons for agriculture's decline are:

- The small size of land plots, which prevents economies of scale and discourages mechanization.
- With a widening rural-urban income gap, agriculture's performance is critical for reducing poverty, which continues to be prevalent in rural areas left behind by the economic growth of recent years.
- A shortage of credit, which has prevented farmers from purchasing high-quality seeds and fertilizers,
- Missing of Knowledge and money to introduce the companies, brands or products to the foreign market.

In Georgia agricultural commodity markets are characterized by a high degree of volatility. Three major market fundamentals explain why that is the case. First, agricultural output varies from period to period because of natural shocks such as weather and pests. Second, demand elasticity are relatively small with respect to price and supply elasticity are also low, at least in the short run. In order to get supply and demand back into balance after a supply shock, prices therefore have to vary rather strongly, especially if stocks are low. Third, because production takes considerable time in agriculture, supply cannot respond much to price changes in the short term, though it can do so much more once the production cycle is completed. The resulting lagged supply response to price changes can cause cyclical adjustments (such as the often referenced „hog cycle”) that add an extra degree of variability to the markets concerned. Business cycle fluctuations in demand for agricultural non-food commodities (such as cotton) from rapidly growing, industrializing economies may also be contributing to increased volatility. This problem in Europe was resolved by the Common Agricultural Policy.

The EU primary sector (agriculture and forestry) accounts for 1.6% of the total GDP and 5.4% of the total employment. At the same time agriculture and forestry cover 84% of the EU territory and play an important role in land management the preservation of natural resources such as biodiversity, landscape and soil (EU Commission, 2011).

The common agricultural policy was born in the late 1950s and early 1960s when the founding members of the EC had emerged from over a decade of severe food shortages during and after World War II. As part of building a common market, tariffs on agricultural products would have to be removed. However, due to the political clout of farmers, and the sensitivity of the issue, it would take many years before the CAP was fully implemented.

In the early years, although the CAP was successful in its main objective (that was, at that time, increasing internal production and moving towards a situation of self-sufficiency), by the ‘80 the results of several years of price support, border protection and export support was the permanent production of surpluses for the major farm commodities, many of them stored or disposed of within
the EU. This situation has caused very high budgetary costs, a significant intensification of agricultural production and a distortion of the international market. In addition to that, the common opinion understood that CAP was paid twice by the citizens (first through the EU Budget and second through high prices of agricultural products), moreover the fact that part of the surpluses were destroyed induced in the public opinion a bad consideration of CAP. All these problems were already clear, at least in the consideration of agricultural economists, at the beginning of ‘80 but they lead to a substantial reform of CAP only at the beginning of ‘90. A fundamental process of reform of CAP started, in fact, in 1992 and was later deepened and extended in 1999 with agenda 2000. The reform started the shift from product support (through prices of commodities) to producer support (through income support to farmers). This also meant that transfers to producers from consumers (through higher prices) were replaced by transfers from taxpayers, reducing the impact on consumers and the processing industry.

The EC27 is Georgia's main trade partner, accounting for roughly one fifth of exports and over one quarter of imports during the review period. Georgian exports were dominated by mineral fuels (around 40% of total exports) and agricultural products (almost 30%). Turkey has consolidated its position as Georgia's leading single trade partner, accounting for nearly 18% of exports and 15% of imports in 2008, following the decline of trade with Russia. Turkey absorbs the bulk of Georgia's exports of scrap metals. The United States became a leading destination for Georgian exports in 2007, buying up much of the output of ferrous alloys.

In terms of imports, Turkey supplies mainly consumer goods and domestic appliances. Azerbaijan has become an important trading partner, providing a market for almost all of Georgia's cement production and is Georgia's main supplier of oil and gas. Ukraine supplies an assortment of goods, mainly consumer goods and metal products. Whereas Georgia was a net supplier of agricultural products in the FSU, it has become a net importer of agricultural and related products, which account for 15% of total imports.

Georgia has favorable production conditions for a variety of annual and perennial crops, and agriculture has traditionally been one of the most significant sectors in the Georgian economy. Among the most developed agricultural sub sectors are viticulture, tea, citrus fruits, vegetables, horticulture, and tobacco and stock breeding includes cattle, pigs, sheep, and poultry. However, the sector presently accounts for under 10% of GDP, down from over 30% in 1990, but employs more than half of the country's labor force in 1990 this share was only 25%.

Government policies for the reforming of agricultural sector must be:

- Finish of Land reform and privatization, So far, only about 25% of privatized arable agricultural land and around 30% of state-owned land is leased out.
- Promote the Agrarian cooperation between small lend own farmers, to merge lends for more competitiveness of their production.
- To reduce poverty in the longer term, it is required to introduction of measures to revitalize the agriculture sector where livelihoods continue to rely on low-productivity subsistence agriculture.
- Help farmers to "find finances" for their business. Nowadays, in Georgia the credits are issued on concessional terms (lower interest rates, longer maturity and grace periods).
- it is not enough, it is important to attract investors and accumulate the money for regional development- it can be agro tourism infrastructure, or other things to reduce living level in agrarian regions.

Besides of above, in my opinion the only way to save the Georgian agriculture sector is a complex of the promotion and certain subsidization runs. Otherwise it is impossible to attract as much funds as the rehabilitation of the sector needs, but as European example shows, we need some balance, to stimulate the public control and medium-sized businesses as much as possible to avoid the monopoly and less effective market in the field.

Of course, there is a possibility of returning to the Russian market, but even in this case, Georgian products may not be competitive with foreign importers, because they are subsidized by the high
level. The other case is that, because of the improvement of infrastructure (roads, transport, set, etc.) imported products will easily reach to the whole country and local agricultural industry will be in a more difficult position. And the major problem- high levels of unemployment, the great army of self-employed people in rural areas will be have only one way - to continue to forced labor on the land in which one can provide income for just to the minimum subsistence levels.

One way of making scale is promoting regional cooperation among the farmers. These cooperation will make on a head the function of Regional Casters, which will provide increase the effectiveness and competitiveness agricultural field

Why clusters? The cluster approach is the mechanism used by international humanitarian actors since 2006 for responding to large-scale complex and natural humanitarian emergencies requiring a multi-sectorial response. It involves sectorial groupings – called ‘clusters’ – of international and national agencies/ NGOs coordinated by designated Cluster Lead Agencies (CLAs), to support and/or complement wherever possible the efforts of national authorities in key sectors of preparedness and response. The objectives are: • to ensure effective coordination of humanitarian and early recovery assistance, especially among international assistance organizations with and in support of national entities; and • to enhance predictability, accountability and partnerships in response (especially international response) through, in particular, the designation of CLAs reporting to the humanitarian coordinator with clearly-defined responsibilities (this being the principal difference between the “cluster approach” and other sector coordination mechanisms).

Clusters provide an opportunity for FAO to help assure appropriate emergency response and promote recovery from the earliest possible moment in sectors of concern to FAO, and to mobilize resources for both the sector as a whole and FAO’s own interventions. This links directly to FAO’s Strategic Objective I (see box below). It also enables FAO to “capitalize on [its] main comparative advantage: matching know-how with resources in building back better the livelihoods of farmers, herders and fishers by providing information, ensuring coordination and providing assistance in partnership with other organizations.”2 A cluster focusing on food security (and/or livelihoods) also provides a mechanism for a holistic approach to food security (and/or livelihoods). This includes the opportunity for FAO to ensure that all concerned recognize that household gardens and small livestock can be important elements of the food security of households that are not generally considered to be dependent on agriculture, and that such activities must be considered and supported.

On our works we have introduced the model of “Regional Clusters”, which will give the opportunity to farmers find resources for the measures, such as:

- Diversification of markets in abroad
- Planning the production process according to the word market demands.
- To raise awareness in the field
- Find new investments for further development
- Find new technologies and innovative methods

In the figure, Association is a farmer’s union with pay method. But the money, they will collect, must not be the major investment for this union. These payments are for salary of few basic employees. The goals of the union will contain but not limited by

- Increasing of member’s list
- Find new markets for export
- Write recommendations for the members about market changes
- Find sources for making trainings and researches about newest ways of agriculture, study new technologies and methods.
- Find finances and other resources for resolving the problems of members.
- Write projects and receive grants for implementation of ISO, HASSP and other international standards in the member organizations.
- Find international Partners and investors, for further development
- Help members and increase the coordination for collecting big batch of products for export, saving the quality and quantity of supply
But these clusters will not be able to start enactment and become successful without startup help of Government, such as:

- Tax benefits,
- Preferences on government purchases and tenders.
- Regional development can be prioritized the projects, which are initiated or submitted by the regional cluster.
- Make some of international standards as a national law and Establish new laboratories and standardization organizations, which will help farmers to obtain export documentations.
Farmers and Cooperatives in the cluster don’t have mutual obligation other than they will agree with each other. But the association must become the place of finding common interests with all or part of its members in the issues, such as:

- Forming a large batch for export
- Obtain the quality certificate
- Invite the experts of the field
- Implementation of new technics and technologies
- And other

For developing countries it is very important to have an agro-production, but for further development of economics is more convenient to produce and export not only primary products (fruit, vegetables) but already processed and manufactured products (juices, canned products and etc).

Besides the problems, clusters will resolve, to stimulate manufacturing in the country, governmental politic must help entrepreneurs to resolve few more difficulties:

1. There are big gaps in greenhouse field in Georgia and therefore supply of agro products is very seasonal. That is the reason of increasing spends for production and makes it unprofitable.
2. Most important problem is, that there is a conflict of interests between the producers and farmers. For Georgian farmers his harvest is the only source of income and of course wants to sell as high price, as possible, to be provided with dignified life. But manufacturers want to buy high quality product in low price to be competitive in market. In my opinion, this case government must resolve this case, as in European Union (as it was written above). - During first few years, government will subsidize the cost of some, most important agro product’s price, if they will be sold for production.
3. And the last, but not least problem- government must stimulate the students study on the programs, market needs at this time. (Seems stupid, but in post-soviet countries there are list of prestigious programs, in which all of students want to study. For example justice, medicine and so on)

An important characteristic of the Georgian agricultural sector is the relative lack of vertical integration and the pre-eminence of small-scale production. The largest share of products, used by producers is bought from independent, small farmers on the market at the time of harvest. This gives rise to a range of problems:

1. As long-term delivery contracts are still highly infrequent, price are quite volatile. This can reinforce the lock-in on the current market; particularly prices are significantly higher when agricultural products can be sold in Russia – to the detriment of those producers attempting to enter the more price-competitive markets of the future.
2. Small farmers are often unable to invest in more modern production methods, leading to outdated, inefficient and labor intensive cultivation techniques and prices that are relatively high for a country with low wages and good natural conditions for plant growing.
3. Quality control over the plants is very hard to establish in market with hundreds of thousands of producers and little vertical integration. Small agro producers are very reluctant to allow factories and other producers to influence the varieties that they grow, their production techniques and harvest times, etc. While some small farmers do produce excellent homemade, but the resulting quantities are too small for commercial export.

A consolidation of such little farmers is unrealistic in the short run and would lead to difficult social considerations, although some larger exporters are gradually attempting to increase their own landproduction and should be encouraged to do so or they can initiate the regional cluster, to achieve more considerations, best quality product from suppliers and a big quantities of production for export.

To resolve these problems, it’s important from government to make some actions for raising public awareness and participation in reform process. Farmers must be learned, how important is cooperation with each other and how many profit will take each of them with consideration of their resources.
While the “Regional Clusters” are going to be successful, they would not be developed without government protection:

❖ It is important to offer farmers the charter pattern and start project funding for trainings about clusters, its benefits and rules for working under the “one umbrella”;
❖ Governmental organizations to fund farmer’s associations for making entrepreneurs register and these projects will develop to the commodity exchange.
❖ Projects which are initiated by the farmers unions, cooperatives or regional clusters must be preference in regional development plans and implemented for the first time. This means, that there will be the coordination between regional and agrarian politics and regional development will provide the labor for agrarian development.

All above cause the intensification of production in the field increase the competitiveness of agro producers and manufacturers. The strict quality control will increase the country’s image, as a best quality producer and gives opportunity Georgian companies for diversification of their markets.

References

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3. Nino Rukhaia-Mosemgvdlishvili - “Regional Clusters” -The Best Way for Georgian Farmers to adaptthe Requirements of the European Market; “ECONOMICS” # 5-6, 2015

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The Effect of Financial & Cash Policies on The Performance and Risk Assessment of Amman Stock Exchange Market

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Abstract
The current study aims to examine the effect of financial and cash policies on evaluating risk associated in stock trading, and measuring stock performance of Amman stock exchange market.

The method used in order to reach the objective of the current study, was through a questionnaire which has been designed for this purpose, and it was distributed randomly to the traders of Amman stock exchange market in the month of January 2017. The number of valid questionnaires analyzed were (180) questionnaires. Resolution data were analyzed using the statistical program SmartPLS, (Partial Least Square). The Study concluded that financial and cash policies affect the investment environment, and Amman stock exchange market currently revealed that the number of traded shares decreased by 3.3% compared by the same period of last year and the number of executed transactions decreased by 25.3% in comparison with the same period of last year.

Keywords: Amman stock exchange market, Financial policies, Cash policies, Risk Assessment, Stock trading, Stock performance, G1, E5

1. Introduction
The current and expected cash and financial policies have direct negative or positive effect on the stock market and the economy at the same time, and the cause of this effect may be directly related to supply and demand reaction in the stock markets. In fact these financial policies formulate the demand and supply in the stock market through cash and financial decisions taken.

The source of financial policy is the government legislations, and it aims to control the revenues and expenditures of the state in order to balance the financial budget as a whole. In light of the financial budget, the rate of taxes is formulated to all sectors. The positive effect of the financial policy would be clearly viewed in form of the actions adopted or taken by the treasury to raise demand by raising the rate of expenditures in the country as a whole. The results of high demand created will lead to high demand in the stock of the benefited companies. The amount of military expenditures in the United States reflected by high demand on the stock of companies executing the military contracts is an example of such action. We should note that, the contrary will happen if there are restrictions on expenditures (Davies, 2008).

On the other hand, cash policy has two important missions, First, is to maintain a stable value for the country’s currency, and second, its considered an important tool of controlling inflation or depression, and that because cash policy has direct contact by investment market and its conditions, and off course, stock market is one of these investment markets which reflect directly trends of the current and expected cash policies adopted by the government. Portfolio Investors should take into consideration the current and expected trends of both cash and financial policies in order to avoid risk, and grab theright opportunity of investment (Pastor, &Veronesi, 2012).

The current research problem focuses on the finding the relationship between financial and cash policies adopted by government to organize the trading transaction and find out the effect of these policies investment opportunities which affect the process of evaluating risk associated in stock trading, and measuring stock performance of Amman Stock Exchange Market (ASE).

In order to stand on study importance and objectives of the current research study, we are going to cover all aspects of both cash and financial policies which govern the investment environment in
Amman Stock Exchange Market, and to stand on the factors that helps or constraints the performance of stock investment in ASE, and finally analyzing both risk associated and the effect of these polices on the performance of ASE. From the researchers point of view these two factors are very important and it worth discussion.

2. Literature Review

Cash or Monetary policy usually refers to the procedures or strategies adopted by a nation’s central bank regarding money circulating in the economy, and the exchange rate. The main objective of monetary policy is to achieve long-term economic growth, promote maximum employment, stable prices and moderate long-term interest rates. Monetary policy can be tight, loose, or neutral. When the economy is growing too fast and inflation is moving at a very high rate, then, the central bank may take steps to control these raising short-term interest rates to stimulate growth and get the economy back on track. (Investopedia, 2017)

On other words, the effect of monetary policy on investment is considered direct when it’s affect the level of interest rates, and it is considered indirect when it’s affect the level of inflation and its expectations.

Financial policy differ than monetary policy by that, the financial policy is carried out by government rather than the central bank who direct the monetary policy. Government control the financial policy as it can stimulate economic growth through measures such as cutting tax and increased spending. Such action aims to boost economic activity rather than central bank in an effort for forbidding or controlling financial crisis. After the 2008’s global recession, the major central banks in USA, Europe, and Japan took a path of unorthodox monetary policy, such as Quantitative Easing (QE) to create money through buying assets from other banks, hoping that they would extend new loans and sparking an economic resurgence (Fed, 2017)

Investors should have a basic understanding of the current monetary policy, as it can have a significant impact on investment portfolio and net worth.

For each stock market there is a general indicator measures the degree of progress or decline in that market. One of the famous and known indicators is Dow Jones, New York, which is one of the largest and important financial and business indicators in the world. Another famous indicator is Nikkei, Tokyo, FT 100, and Hang Seng, Hong Kong. All these indicators are the most watched stock indexes, they represent different sectors of the economy, and they reflect the up and down investment movement in traded stock prices.

At the national level, Amman Financial Market started by the establishment of the few public shareholding companies wherethey set up their shares long before the setting up of the Jordanian Securities Market. In the early thirties, the Jordanian public already subscribed to and traded in shares; the Arab Bank was the first public shareholding company to be established in Jordan in 1930, followed by Jordan Tobacco and Cigarettes in 1931, Jordan Electric Power in 1938, and Jordan Cement Factories in 1951. The first corporate bonds were issued in the early sixties (ASE, 2017).

As a result, an unorganized securities market has emerged in the form of non-specialized offices. This prompted the government to contemplate the idea of setting up a market to regulate issuance of and dealing in securities, in a manner that would ensure safe, speedy and easy trading, and protect small savers, through a mechanism that would define a fair price based on supply and demand. Successive economic plans called for the establishment of such a market, and various parties started to prepare, with the government's support, for setting up an organized securities market. In 1975 and 1976, the Central Bank conducted intensive studies, in cooperation with the World Bank's International Finance Corporation (IFC), and it became clear therefrom that the size of the national economy and the share of the private sector in it through public shareholding companies and its broad investor base justified such a step. Such a market was perceived as a creator of and caterer for much needed opportunities for economic growth which would stimulate and spurt economic activity. These joint efforts bore their fruit, and Temporary Law No. 31 of the year 1976 was promulgate, and what was known as Amman Financial Market was consequently established. A Cabinet resolution of March 16, 1977 set up an
AFM Administration Committee, which immediately went into action; and operation on AFM started on the 1st of January, 1978.

The Jordanian government adopted a comprehensive capital market reforming policy, which aimed at building on the previous 20 years’ experience, boosting the private sector, expanding and diversifying the national economy, and improving regulation of the securities market to reach international standards. Among the most important features of the new orientation were institutional changes in the capital market, use of international electronic trading, settlement and clearance systems, elimination of obstacles to investment, and strengthening capital market supervision to reach optimum transparency and safe trading in securities, in line with globalization and openness to the external world.

The enactment of the Temporary Securities Law, No. 23 of the year 1997, was a landmark; indeed, it was a qualitative leap and a turning point for the Jordanian capital market. Its aim was to restructure and regulate the Jordanian capital market, and to complete its infrastructure in consistency with international standards, in order to secure transparency and safe trading in securities. The central feature of this restructuring effort was the separation of the supervisory and legislative role from the executive role of the capital market. The latter was left to the private sector, whereby Amman Stock Exchange/Securities Market (ASE) and the Securities Depository Center (SDC) played the executive role, and the supervisory and legislative role was entrusted to Jordan Securities Commission (JSC).

The Law provided for setting up three new institutions to replace AFM, namely:

1. Jordan Securities Commission (JSC)
2. Amman Stock Exchange (ASE): It is a non-profit legal entity, with financial and administrative autonomy, and it is authorized to act as an organized market for trading in securities in the Kingdom. Its membership is made up of financial brokers, and it is managed by the private sector. It has started its operations on March 11, 1999.
3. Securities Depository Center (SDC)

Recently, a new Securities Law number 76 for the year 2002 has been issued which authorized setting up other stock exchanges and allowed forming an independent investor protection fund, stricter ethical and professional codes, and a more stringent observance of the rule of law.

Amman Stock Exchange Market (ASE) Financial Performance:

During the month of February, 2017, and during the period of this research study, the following information about the financial activities of the ASE was available: The following is up to date figures of ASE.
### The following information are about the best performance 10 companies of ASE during the months of January and February, 2017.

<table>
<thead>
<tr>
<th>Company’s name</th>
<th>Market capital (JD million)</th>
<th>% to the total market capital</th>
<th>Closing price This month</th>
<th>Last month</th>
</tr>
</thead>
<tbody>
<tr>
<td>ARAB BANK</td>
<td>4,113.9</td>
<td>23.1</td>
<td>6.42</td>
<td>6.19</td>
</tr>
<tr>
<td>THE HOUSING BANK FOR TRADE AND FINANCE</td>
<td>2,704.0</td>
<td>15.2</td>
<td>10.73</td>
<td>10.72</td>
</tr>
<tr>
<td>THE ARAB POTASH</td>
<td>1,424.7</td>
<td>8.0</td>
<td>17.10</td>
<td>17.50</td>
</tr>
<tr>
<td>AL-EQBAL INVESTMENT COMPANY LTD</td>
<td>762.0</td>
<td>4.3</td>
<td>25.40</td>
<td>23.60</td>
</tr>
<tr>
<td>JORDAN ISLAMIC BANK</td>
<td>630.0</td>
<td>3.5</td>
<td>4.20</td>
<td>3.84</td>
</tr>
<tr>
<td>BANK OF JORDAN</td>
<td>578.0</td>
<td>3.2</td>
<td>2.89</td>
<td>2.85</td>
</tr>
<tr>
<td>JORDAN TELECOM</td>
<td>427.5</td>
<td>2.4</td>
<td>2.28</td>
<td>2.17</td>
</tr>
<tr>
<td>JORDAN KUWAIT BANK</td>
<td>379.0</td>
<td>2.1</td>
<td>3.79</td>
<td>3.90</td>
</tr>
<tr>
<td>CAIRO AMMAN BANK</td>
<td>345.6</td>
<td>1.9</td>
<td>1.92</td>
<td>1.80</td>
</tr>
<tr>
<td>JORDAN PETROLEUM REFINERY</td>
<td>338.0</td>
<td>1.9</td>
<td>3.38</td>
<td>3.40</td>
</tr>
</tbody>
</table>

### 3. Method

The primary data needed for the study objectives were collected through a survey conducted among Different traders in Amman Stock Exchange Market. The traders are usually performing their transaction on a daily basis except Friday and Saturday, which is off days. The research study sample size was 200 traders which were determined using the sample size formula to constitute the study population.

A questionnaire has been designed for this purpose, and it was distributed randomly to the traders taking part in actions and activities at the Securities Depository Center in February 2017. The number
of valid questionnaires analyzed were (180) questionnaires out of (200) distributed which constitute 90% of total questionnaires distributed. The questionnaire was designed out of 15 questions only in order to enable the respondent to complete the questionnaire is a short time, knowing that many of them doesn’t have the time to fill out the questionnaire. Resolution data were analyzed using the statistical program Smart PLS.

Quantitative data were collected using a self-administered questionnaire, in which the traders were asked to state the likelihood (on a 5-point scale: [5] strongly agree; [4] agree; [3] neutral; [2] disagree; [1] strongly disagree (Likert, 1932).

Other Data is collected from secondary sources. Secondary data is collected from articles published by the well-known periodicals, books, and dissertations.

3.1. Statistical Analysis

The Statistical Package for Social Sciences Smart PLS was applied in analyzing the data received; Statistical Analysis tools include the followings:

1. Descriptive Statistics, mainly frequencies and percentages, were used to analyze sample characteristics according to job, educational level, professional certificates, and experience.
2. Correlation, Inter-correlation, Regression, and Path Coefficient were used to analyze and describe study variables from a statistical point.
3. Reliability Test using Cronbach’s Alpha was used to test the reliability of the scale.

3.2. Research Design (Exhibit-1)

Research design is formed out of three main elements which constitute the research design. The Model in Exhibit-1 shows the effect of cash policy, and financial policy on the performance and risk assessment.

3.3. Study Hypothesis

H1: There is a statistical effect of cash policy on stock performance and risk assessment.

H2: There is a statistical effect of financial policy on stock performance and risk assessment.

3.4. Data Analysis and Findings

3.4.1. Reliability test:

Cronbach’s alpha was used to test the internal reliability of the measurement instrument. According to Uma, Sekrran a Cronbachs Alpha of 0.60 or higher is considered acceptable(Uma Sekrran, 2003). As shown in Table (1) the Cronbach’s Alphas (α) ranged from 0.754 to 0.882, thus establishing the reliability of the survey questionnaire. It is obvious that all values of alpha are acceptable and relatively high. This indicates that for each measurement of a variable, the items are correlated and hence highly consistent. Table (1) shows the Cronbach's alpha for each scale:

Table 1: Cronbachs Alpha

<table>
<thead>
<tr>
<th>Scale</th>
<th>Cronbachs Alpha</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cash Policy &amp; Financial Policy</td>
<td>0.882</td>
</tr>
<tr>
<td>Risk Assessment &amp; Stock Performance</td>
<td>0.754</td>
</tr>
</tbody>
</table>
3.4.2. Sample Characteristics

The respondents were 74% male and 26% female; most of them were between the age of 26 years and 45 years. Most respondents had average experience more than 5 years. Most of the job titles of 67% of the respondents were Office Clerk, 19% Deputy Manager, 9% Head of department, and finally 5% were Executive managers. Most of respondents 70% had Bachelors’ degree, and the remaining 30% were having other degrees. Demographic data is shown in Table No. 2.

Table No. 2  Demographics Data for Study Population

<table>
<thead>
<tr>
<th>Variable</th>
<th>Group</th>
<th>Frequencies</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sex</td>
<td>Male</td>
<td>147</td>
</tr>
<tr>
<td></td>
<td>Female</td>
<td>33</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td>180 100%</td>
</tr>
<tr>
<td>Age</td>
<td>Less than 25 years</td>
<td>18</td>
</tr>
<tr>
<td></td>
<td>From 26 years—35 years</td>
<td>69</td>
</tr>
<tr>
<td></td>
<td>More than 36 years—45 years</td>
<td>55</td>
</tr>
<tr>
<td></td>
<td>More than 46 years</td>
<td>38</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td>180 100%</td>
</tr>
<tr>
<td>Professional Certificate</td>
<td>Bachelors' Degree</td>
<td>109</td>
</tr>
<tr>
<td></td>
<td>Other Degree</td>
<td>71</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td>180 100%</td>
</tr>
<tr>
<td>Experiences</td>
<td>Less than 5 years</td>
<td>22</td>
</tr>
<tr>
<td></td>
<td>From 6 years – 10 years</td>
<td>63</td>
</tr>
<tr>
<td></td>
<td>More than 11 years – 15 years</td>
<td>77</td>
</tr>
<tr>
<td></td>
<td>More than 16 years</td>
<td>18</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td>180 100%</td>
</tr>
</tbody>
</table>

3.4.3. Smart PLS Results:

The structural model results are shown in Exhibit 2. Examining the path coefficients; the numbers on Table 3 enables us to determine, that cash and financial policy has the strong effect on risk assessment and stock performance (0.905). The results show that the relationship between the two variables is statistically significant. Based on their path coefficient scores, it would appear that the influence of cash and financial policy on risk assessment and stock performance is significant.

Table 3: Path coefficient

<table>
<thead>
<tr>
<th>Cash Policy &amp; Financial Policy</th>
<th>Risk Assessment &amp; Stock Performance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cash Policy &amp; Financial Policy</td>
<td>0.905397</td>
</tr>
</tbody>
</table>

Examining the outcomes of R Square which represents the proportion of variation in the responses that is explained by the original model using predictor values from the test data. Moreover, the constructs explain 78.4 percent of the variance of the endogenous latent construct ($R^2 = 0.819$). According to R square results it is considered high. Table 4 illustrates the R square results.

Table 4: R square

<table>
<thead>
<tr>
<th>Cash Policy &amp; Financial Policy</th>
<th>R Square</th>
</tr>
</thead>
<tbody>
<tr>
<td>Risk Assessment &amp; Stock Performance</td>
<td>0.819743</td>
</tr>
</tbody>
</table>
The convergent validity assessment is associated with the Average Variance Estimated (AVE) value. The evaluation of validity criterion in table 4 illustrates that the AVE values of cash and financial policy (0.325), risk assessment and stock performance (0.576), risk assessment & stock performance are above the cutoff point of 0.50. Therefore, it reflects high levels of convergent validity. As for cash policy & financial policy it reflects lower value, and below the cut off point 0.50, and this may be attributed to the responses of the study community, but anyhow its acceptable and doesn’t ruin the study conclusions (Fornell & Larcker, 1981).

Table 4: AVE

<table>
<thead>
<tr>
<th></th>
<th>AVE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cash Policy &amp; Financial Policy</td>
<td>0.325955</td>
</tr>
<tr>
<td>Risk Assessment &amp; Stock Performance</td>
<td>0.576143</td>
</tr>
</tbody>
</table>

The evaluation of total effect of (t. statistics) tested through bootstrapping test, and it is illustrated in table 5, the effect value of cash and financial policy on risk assessment and stock performance is equal to (53.176), Therefore the study hypotheses shows significance effect of cash and financial policy on risk assessment and stock performance.

Table 5: Total Effect:

| Cash Policy & Financial Policy -> Risk Assessment & Stock Performance | T Statistics (|O/STERR|) |
|-----------------------------------------------------------------------|--------|
|                                                                       | 53.176068 |
4. Conclusions & Recommendations

4.1. Conclusions

The Study concluded that financial and cash policies have significant affect on stock performance, the investment environment, and eventually on the performance Amman Stock Exchange Market as a whole. Also the study revealed under the current conditions of ASE that the number of traded shares decreased by 3.3% compared by the same period of last year and the number of executed transactions decreased by 25.3% in comparison with the same period of last year.

4.2. Recommendations

Traders should keep their attention on reforming policies adopted by government in order to reduce risk and at the same time increase the potentials of achieving gains. ASE should work on continuous measures to strengthen capital market supervision in order to reach optimum transparency and safe trading in securities. ASE should encourage technological trading practices that increase the efficiency of stock trading.
5. References:


Renewable Energy, Arable Land, Agriculture, CO₂ Emissions, and Economic Growth in Morocco

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Abstract

The autoregressive distributed lag (ARDL) bounds approach to cointegration and Granger causality tests are used to investigate the dynamic short and long-run causality relationships between per capita renewable energy (RE) consumption, carbon dioxide (CO₂) emissions, real gross domestic product (GDP), agricultural value added (AVA), and arable land use (LUSE) for the case of Morocco during the period 1980-2013. Two models are used: the first with the AVA variable, and the second with the LUSE variable. The Wald test confirms the existence of a long-run relationship between variables for each considered model. Our long-run estimates indicate that an increase in economic growth, agricultural production, and arable land use contribute to increase the use of renewable energy, while a decrease in CO₂ emissions increases renewable energy consumption. Granger causality tests reveal the existence of a short-run unidirectional causality running from AVA and from LUSE to RE consumption; a long-run unidirectional causality running from LUSE to RE, and a long-run bidirectional causality between AVA and RE. We recommend that Morocco should continue to encourage renewable energy use because this latter is not in competition with agricultural production for land use, but rather it is a complementary activity.

Keywords: Autoregressive distributed lag; Granger causality; renewable energy; agricultural value added; arable land use; Morocco.

JEL classifications: C32; O55; Q15; Q42; Q54.