Publication Information:

Aims and Scope:

Editorial Board Members:
Asst. Prof. Dr. Güner Tural
Prof. Alejandro Escudero
Prof. Diane Schwartz
Prof. Gordana Jovanovic Dolecek
Prof. Käthe Schneider
Prof. Michael Eskay
Prof. Smirnov Eugeny
Associate Prof. Rosalinda Hernandez
Prof. Cameron Scott White
Prof. Ghazi M. Ghaith
Prof. Grigoris Karafillis
Prof. Lihshing Leigh Wang
Prof. Okechukwu Sunday Abonyi
Prof. Yea-Ling Tsao
Prof. Aaron W. Hughey
Prof. Deonarain Brijlall
Prof. Gil-Garcia, Ana
Prof. James L. Morrison
Prof. Mercedes Ruiz Lozano
Prof. Peter Hills

Manuscripts and correspondence are invited for publication. You can submit your papers via Web submission, or E-mail to teacher@davidpublishing.com or teacher@davidpublishing.org. Submission guidelines and Web submission system are available at http://www.davidpublishing.com.

Editorial Office:
240 Nagle Avenue #15C, New York, NY 10034, USA
Tel: 1-323-984-7526, 323-410-1082
Fax: 1-323-984-7374, 323-908-0457
E-mail: teacher@davidpublishing.com, teacher@davidpublishing.org, edu1658@yahoo.com

Copyright©2014 by David Publishing Company and individual contributors. All rights reserved. David Publishing Company holds the exclusive copyright of all the contents of this journal. In accordance with the international convention, no part of this journal may be reproduced or transmitted by any media or publishing organs (including various Websites) without the written permission of the copyright holder. Otherwise, any conduct would be considered as the violation of the copyright. The contents of this journal are available for any citation. However, all the citations should be clearly indicated with the title of this journal, serial number and the name of the author.

Abstracted/Indexed in:
Database of EBSCO, Massachusetts, USA
Chinese Database of CEPS, Airtiti Inc. & OCLC
Chinese Scientific Journals Database, VIP Corporation, Chongqing, P.R.C.
Ulrich’s Periodicals Directory
ASSIA Database and LLBA Database of ProQuest
Excellent papers in ERIC
Norwegian Social Science Data Service (NSD), Norway
Universe Digital Library Sdn Bhd (UDLSB), Malaysia
Summon Serials Solutions
Google Scholar
J-GATE

Subscription Information:
Price (per year):
Print $600 Online $480
Print and Online $800

David Publishing Company
240 Nagle Avenue #15C, New York, NY 10034, USA
Tel: 1-323-984-7526, 323-410-1082
Fax: 1-323-984-7374, 323-908-0457
E-mail: order@davidpublishing.org
Contents

Educational Psychology

Pina Filippello, Luana Sorrenti, Francesca Cuzzocrea, Antonella Nuzzaci, Rosalba Larcan  
73

Vocational and Technical Education

The Influence of Training and Various Forms on Increasing Employees’ Qualifications in European Enterprises  
Joanna Żukowska  
86

Educational Evaluation and Assessment

Competence Development Assessment in Teacher Education: Design and Evaluation of Portfolio Exams  
Thomas Prescher, Frederick Schulz  
96

Educational Theory and Practice

Capacity Building in Energy Sector: The Role of Physical Sciences  
Nnabugwu Chinyere Peace, Oluwole Adegbemro, Babatunde Oluwabori Ayodeji, Azizat Olusola Gbadegesin  
104

An Examination of the Heuristic Role of Theory in Undergraduate Political Research  
Moses Metumara Duruji  
114

Sociology of Education

Explore the Factors Influence Students’ Knowledge Representations by Using Socio-scientific Issues Through Inquiry Process  
An-Chi Yeh, Chia-Ju Liu  
123
The Effects of the “Be My Hope” Project on Disadvantaged Children’s School Burnout Levels

Gönül Onur Sezer, Ömür Sadioğlu, Asude Bilgin, Aynur Oksal, Hatice Çağlar Özteke

Educational Policy and Management

The Core Competencies of Open Universities in China: Theory and Practice

Wang Xiao-nan, Chen He-nan

Education and Culture

Cultural Factors Behind Semantic Differences

Wang Xiao-yan

Pina Filippello, Luana Sorrenti, Francesca Cuzzocrea
University of Messina, Messina, Italy

Antonella Nuzzaci
University of L’Aquila, L’Aquila, Italy

Rosalba Larcan
University of Messina, Messina, Italy

Many researchers have analyzed the relationship among self-esteem, decision-making, and interpersonal behavior in Italian adolescents. However, the purpose of those studies was to determine if adolescents with high or low academic performance present different levels of self-esteem, decision-making, and interpersonal behavior. One hundred students, equally divided into two groups (high vs. low academic performance), were selected. They were asked to fill out self-analyzing questionnaires in order to estimate their perceptions of their self-esteem, decision-making styles, and social abilities. As expected, low academic performance was associated with lower self-esteem and lower decision-making abilities, while students with high academic performance showed higher self-esteem and more functional decision-making styles. Sample characteristics did not allow to generalize the results; however, data analysis confirmed the necessity to organize education training for teachers that could be useful to increase not only academic competences but also individual competences, which seem to be closely linked together.

Keywords: academic performance, adolescence, decision-making, assertiveness, self-esteem

Introduction

Contemporary society, which is particularly complex and dynamic, always requires the acquisition of a complex repertoire of skills from the subjects. The World Health Organization (WHO), has long since urged institutions to promote “life skills”, which are the social abilities (emotional, relational, cognitive, and meta-cognitive skills) necessary for young people to adapt to their living environment in the best way possible. Schools are the best places to start with when it comes to learning about life skills. Schools have been paying

* Pina Filippello was responsible for conception and study design, Luana Sorrenti was responsible for manuscript preparation and generation of the initial draft, Francesca Cuzzocrea assisted with data analysis and interpretation, and Antonella Nuzzaci and Rosalba Larcan were responsible for the study supervision and manuscript editing of this manuscript. All authors take responsibility for the integrity of the data and the accuracy of the data analysis. All authors contributed to and have approved the final manuscript.

Pina Filippello, Ph.D., associate professor, Department of Human and Social Sciences, University of Messina.
Luana Sorrenti, Ph.D., assistant professor, Department of Human and Social Sciences, University of Messina.
Francesca Cuzzocrea, Ph.D., assistant professor, Department of Human and Social Sciences, University of Messina.
Antonella Nuzzaci, Ph.D., associate professor, Department of Human Studies, University of L’Aquila.
Rosalba Larcan, Ph.D., professor, director, Department of Human and Social Sciences, University of Messina.
more and more attention to the individual needs of students, to their emotional spheres, and to their learning styles, recognizing the potential areas of difficulties and turning to experts to help the students develop the necessary skills of self-promotion and self-determination that they will use throughout their whole lives (McCabe & Altamura, 2011; Sklad, Diekstra, De Ritter, Ben, & Gravesteijn, 2012).

**Literature Review**

Specific characteristics of each student (skills, cognition, attitudes, and motivations) can have a great impact on the learning process, facilitating or hindering it enough to lead the student to scholastic failure. Covington (1992) stated that a student dominated by anxiety and lack of self-confidence will encounter many difficulties in directing his/her behavior towards the goals he/she would like to achieve. Many studies have demonstrated that specific approaches to challenges in the school environment influence the level success attained at school (Midgley, Arunkumar, & Urda, 1996; Nurmi, Aunola, Salmela-Aro, & Lindroos, 2003) and in college (Rhodewalt & Hill, 1995). For example, Ruthig, Perry, Hladkyj, Hall, Pekrun, and Chipperfield (2008) and Dickhäuser, Reinhard, and Englert (2011) reported that students who show good motivation, optimism, and perseverance are more focused on the task; positive emotions and a sense of control promote academic success and personal satisfaction. On the other hand, fear of failure, lack of responsibility, and a high level of task avoidance can lead to failure.

According to Borkowski, Carr, Rellinger, and Pressley (1990) and Borkowski and Muthukrishna (1992), the performance of an assignment is influenced by complex factors closely linked together, such as a subject’s beliefs about his/her own ability to carry out the task (self-efficacy), the level of motivation (which is often caused mainly by environmental variables, such as parental aspirations or the influence of particularly significant people who are role models to the subject), and the importance given to personal commitment and the value that the culture of origin gives to success. If a vicious circle of negative factors arises, the situation could lead to failure and have a negative impact on mood, behaviour (Larcan, 2000; Sorrenti, Larcan, Cuzzocrea, & Oliva, 2004), and the ability to make good choices (Cuzzocrea, Larcan, & Murdaca, 2012).

Some studies on decision-making (Meldahl & Muchinsky, 1997; Nurmi et al., 2003) have found that individuals with high levels of anxiety, negative thoughts about themselves, and identity problems have more difficulty in choosing their own course of study compared to the individuals who do not manifest these problems. These subjects, like most people who are indecisive, show low self-esteem, high levels of frustration, and an external locus of control.

In an interesting study, Saka and Gati (2007) created a classification of three variables related to decision-making: pessimism, anxiety, and the perception of self-identity. They found significant correlations between indecision and the perception of self, self-esteem, and anxiety, and it appears that the difficulties experienced by the subjects examined lasted over time, hindering future decisions.

Other studies demonstrate that people with a healthy self-esteem are more inclined (because they feel more at ease) to engage in social relations with unknown people than the individuals with self-esteem problems (Buhrmester, Furman, Wittenberg, & Reis, 1988); consequently, they are more comfortable taking “risks” when it comes to making decisions about their interpersonal sphere (Campbell & Fehr, 1990).

It has been demonstrated that subjects with good self-esteem choose partners that confirm their positive perception of themselves, even if this involves an interaction with individuals who are not really interested in them; while subjects with self-esteem problems who desire to be accepted, can get involved with people who do
not judge them in a positive way, making their social life worse (Rawn, Mead, Kerkhof, & Vohs, 2007). Previous studies (Le Pine & Van Dyne, 1998) showed how the individuals with a lower level of self-esteem often make poor decisions in order to be accepted by a group. Self-esteem is closely connected to self-determination, the sense of having control over their own lives, and the possibility to make choices by adequately weighing the alternatives and influencing the arising consequences. Therefore, “self-determination” means “empowerment” and active participation in decision-making process that help people reach the goals they consider important in their lives. High values of self-determination are associated with high self-efficacy, perception of support from others, and effective decision-making among adolescents who have to face important choices (Nota, Ferrari, & Soresi, 2003). It is important to understand the relationship among these factors and how they affect individuals’ scholastic success or failure. The goal of this study is to create a teaching style that intersects the knowledge of the decision-making processes and decision-making styles with a collection of strategies that facilitate learning in schools.

As explained by Thoonen, Sleegers, Peetsma, and Oort (2011) in their survey of the most recent and significant empirical literature conducted in this area (Oostdam, Peetsma, & Blok, 2007), the majority of the international research efforts had been addressed. Since the 1960s, Italian experimental educational and psychological research focusing on the issues of educational attainment has taken place (Visalberghi, 1955; 1958; Gattullo, 1976; Vertecchi, 1977; 1989), addressing cases of drop-outs or evasion at all levels of education and inequality of educational opportunities (Gattullo, 1984; 1989). In particular, the most recent study focused on the elements that demotivate students, on abnormal behaviors and difficulties related to the inability to ensure procedural fairness “regarding the relationships between teachers and students that are important for effective education” (Vertecchi, 2006, p. 109). The processes of self-determination and self-regulation of learning are becoming increasingly recurrent in various psychological and pedagogical surveys. Self-determination involves motivation, decision, and planning, while self-regulation is linked to observation, evaluation, and control, which is somewhat more complex.

In the first case, it is necessary to give meaning and purpose to actions and we use “strategic” control, which highlights the motivational component, the meaning, and the value of the action. In the second case, it is necessary to monitor the consistency and resilience of the action and regulate it using a strategy that is more “tactical” (Pellerey, 2006). The two strategies consist of forms of intervention and specific actions that outline the importance of learning how to handle themselves in training and self-training contexts related to the development of new skills and competences.

The research shows that an increase of self-regulation among students seems to have positive effects on motivation and performance, but it is unclear whether these findings can apply to all teaching models (Thoonen et al., 2011, p. 347). It is for this reason that this field of study is regarded as fruitful and it is at the center of the new and complex process, which can open up new perspectives and interpretations of the teaching-learning processes and education plans that help remove obstacles that hinder the acquisition of specific skills (such as those related to critical thinking, reflection, problem solving, etc.). These techniques and strategies will lead to the expansion of the repertoire of teaching methods and teaching instruments of intervention (Nuzzaci, 2004; 2011). In this process, it is evident that the quicker the intervention, the more can be done to prevent a chain reaction that would have a negative effect on the students’ self-esteem levels, and therefore, on their motivations. Such chain reaction would have heavy social implications in terms of actual realization of the right to education and becoming an active and aware citizen. The study can therefore be considered preliminary
research that acts as a background to a larger study that pursues, through appropriate methodology, the goal of identifying learning difficulties and teaching problems and finding strategies that help solve those problems and minimize school failure and mortality which arise as a consequence of social and civil inequalities. The connection between school failure, dysfunctional thoughts, low levels of self-esteem, and poor decision-making skills leads researchers to focus on the cognitive skills and social competences of students. The cognitive components must be considered an important aspect for those who deal with learning: Understanding these mechanisms allows to take advantage of the different resources (attitudes, behaviors, cognitive skills, social skills, etc.). Teachers will be able to design effective intervention plans and implement individualized strategies (Vertecchi, 2003; Vertecchi, La Torre, & Nardi, 1995) that will have obvious positive effects on learning.

**Research Objectives**

The purpose of this survey is to analyze the relationships between decision-making and low academic performance. In particular, this study attempts to verify whether self-esteem, social skills, and decision-making styles play different roles on academic performance. It should be noted that frustration deriving from repeated experiences of failure usually affects self-esteem, and in some subjects, may contribute to the onset of learning helplessness. After careful examination of the literature, the authors believe that students who frequently experience academic failure could present lower levels of self-esteem and higher levels of dysfunctional thinking and decision-making abilities.

**Method**

**Participants**

The sample consisted of 100 Italian students (61 males and 39 females) between the ages of 15-16 and 17-18, attending a high school in Messina (Sicily). Academic performance is considered a variable that can differentiate students’ outcomes. According to their academic performances, they were divided into three groups depending on the average grade given by teachers: high (A, B, or C in almost all the subjects), medium (D), and low (E and F).

<table>
<thead>
<tr>
<th>Academic performances</th>
<th>Age level</th>
<th>Male</th>
<th>Female</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>High</td>
<td>15-16 years old</td>
<td>15</td>
<td>10</td>
<td>25</td>
</tr>
<tr>
<td></td>
<td>17-18 years old</td>
<td>12</td>
<td>13</td>
<td>25</td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td>27</td>
<td>23</td>
<td>50</td>
</tr>
<tr>
<td>Low</td>
<td>15-16 years old</td>
<td>17</td>
<td>8</td>
<td>25</td>
</tr>
<tr>
<td></td>
<td>17-18 years old</td>
<td>17</td>
<td>8</td>
<td>25</td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td>34</td>
<td>16</td>
<td>50</td>
</tr>
</tbody>
</table>

Academic performance was provided by teachers. In particular, the grades (in oral quizzes and written tests) obtained in literature and science were taken into consideration. Each student’s grades reported by teachers were recorded on a special form. A performance with an mean of seven (more than sufficient) was considered “high”, a performance with a mean of six (sufficient) was considered “medium”, and a performance with a mean of five or lower (insufficient) was considered “low”. The group of students with the lowest
academic performance was discarded from the statistical analysis. For this reason, 100 students (see Table 1) were selected from an initial sample (292 subjects).

**Procedure and Measuring Instruments**

Subjects were involved in the study as part of a larger scholastic guidance project.

The following standardized tools were used: Melbourne Decision-Making Questionnaire (MDMQ), the Scale for Interpersonal Behavior (SIB), and the Multidimensional Self-esteem Test (TMA).

Students completed the questionnaires in their classrooms during school hours in two different sessions. The questionnaires were voluntary and the answers were confidential. The study procedures were explained, questions were answered, and participants were given a questionnaire packet. Participants were required to complete the questionnaire packets between 30-45 minutes and the order of testing predetermined.

The MDMQ. The MDMQ (Italian adaptation by Nota & Soresi, 2000) was designed to assess how individuals approach decisional situations. It distinguishes among four approaches to decisions: 1. Vigilance involves a careful, unbiased, and thorough evaluation of alternatives and rational decision-making; 2. Hypervigilance involves a hurried and anxious approach; 3. Procrastination involves delaying decisions; and 4. Buck passing involves leaving decisions to others and avoiding responsibility. It consists of 22 items and is composed of four sub-scales: (a) Vigilance Scale (Sample item: “I like to consider all of the alternatives”); (b) Hypervigilance Scale (Sample item: “Whenever I face a difficult decision, I feel pessimistic about finding a good solution”); (c) Procrastination Scale (Sample item: “Even after I have made a decision, I delay acting upon it”); and (d) Buck Passing Scale (Sample item: “I prefer to leave decisions to others”).

The subject must indicate “Not true”, “Sometimes true”, or “True” for each statement that describes a behavior when making a choice.

The reliability of Vigilance Scale in this study was $\alpha = 0.76$ (Students with high academic performances: 15-16 years old, $\alpha = 0.73$; 17-18 years old, $\alpha = 0.77$, while students with low academic performances: 15-16 years old, $\alpha = 0.71$; 17-18 years old, $\alpha = 0.79$).

The reliability of Hypervigilance Scale in this study was $\alpha = 0.81$ (Students with high academic performances: 15-16 years old, $\alpha = 0.79$; 17-18 years old, $\alpha = 0.80$, while students with low academic performances: 15-16 years old, $\alpha = 0.81$; 17-18 years old, $\alpha = 0.82$).

The reliability of Procrastination Scale in this study was $\alpha = 0.79$ (Students with high academic performances: 15-16 years old, $\alpha = 0.78$; 17-18 years old, $\alpha = 0.79$, while students with low academic performances: 15-16 years old, $\alpha = 0.78$; 17-18 years old, $\alpha = 0.80$).

The reliability of Buck Passing Scale in this study was $\alpha = 0.80$ (Students with high academic performances: 15-16 years old, $\alpha = 0.80$; 17-18 years old, $\alpha = 0.82$, while students with low academic performances: 15-16 years old, $\alpha = 0.81$; 17-18 years old, $\alpha = 0.82$).

The SIB. The SIB (Arrindell, Nota, Sanavio, Sica, & Soresi, 2004) is a 50-item multidimensional measure of difficulty and distress in assertiveness. The SIB assesses negative assertion and the expression of it and dealing with personal limitations, initiating assertiveness, and positive assertion. In addition to an overall measure of assertion, the SIB contains four dimensions:

1. Display of negative feelings or negative assertion: requesting change in another person’s irritating behavior; standing up for one’s rights in a public situation (defense of rights and interests); behavior that calls for the exercise of initiative to resolve problems and to satisfy needs; and the ability to refuse requests;
2. Expression of and dealing with personal limitations: admitting ignorance about a topic; realization of one’s failures or shortcomings; the ability to deal with criticism and pressure; and requesting help and attention;

3. Initiating assertiveness: social assertiveness (introducing oneself, starting a conversation with a stranger or a group of strangers, and expressing one’s own opinions);

4. Positive assertion (praising others and the ability to deal with compliments/praise of others): giving and receiving praise or compliments and showing positive feelings towards others.

The SIB consists of two parts: The first one asks the subject to indicate “the amount of distress” on a Likert Scale which goes from 1 (“No distress”) to 5 (“A lot of distress”), caused by the situations reported by the items. In the second part, the subject is required to indicate the frequency or “How often does the behavior described happen”, always on a Likert Scale from 1 (“Never”) to 5 (“Always”). In addition to these sub-scales, a score on the General Assertiveness Scale can be used as an indication of a person’s level of assertiveness across a wide variety of situations and various types of assertive responses.

The SIB contains 50 items, 46 of which are classified in a non-overlapping trend into the four categories of assertiveness referred to earlier. The respondent evaluates each item on two separate 5-point (1-5) Likert-type scales, one for discomfort (response options range from “Not at all” to “Extremely”), and the other for the probability of engaging in a specific assertive behavior (response options range from “I never do” to “I always do”). The general assertiveness scores for distress and frequency are obtained by summing up all 50 items.

The reliability of Negative Assertion Scale in this study was $\alpha = 0.83$ (Students with high academic performances: 15-16 years old, $\alpha = 0.81$; 17-18 years old, $\alpha = 0.83$, while students with low academic performances: 15-16 years old, $\alpha = 0.82$; 17-18 years old, $\alpha = 0.83$).

The reliability of Personal Limitations Scale in this study was $\alpha = 0.82$ (Students with high academic performances: 15-16 years old, $\alpha = 0.80$; 17-18 years old, $\alpha = 0.82$, while students with low academic performances: 15-16 years old, $\alpha = 0.81$; 17-18 years old, $\alpha = 0.82$).

The reliability of Initiating Assertiveness Scale in this study was $\alpha = 0.80$ (Students with high academic performances: 15-16 years old, $\alpha = 0.80$; 17-18 years old, $\alpha = 0.80$, while students with low academic performances: 15-16 years old, $\alpha = 0.79$; 17-18 years old, $\alpha = 0.81$).

The reliability of Positive Assertion Scale in this study was $\alpha = 0.81$ (Students with high academic performances: 15-16 years old, $\alpha = 0.81$; 17-18 years old, $\alpha = 0.82$, while students with low academic performances: 15-16 years old, $\alpha = 0.82$; 17-18 years old, $\alpha = 0.83$).

The TMA. In this research, only two of the six scales of the Italian version of the TMA (Bracken, 1993)—Academic Success (self-assessment of academic performance) and Competence of Environmental Control (self-perception of ability to solve problems, reach goals, and interact with the school environment) were used. The subject could answer each statement with “Absolutely true”, “True”, “Not true”, or “Absolutely not true” (4-point Likert-type scale).

The reliability of Academic Success Scale in this study was $\alpha = 0.82$ (Students with high academic performances: 15-16 years old, $\alpha = 0.81$; 17-18 years old, $\alpha = 0.83$, while students with low academic performances: 15-16 years old, $\alpha = 0.80$; 17-18 years old, $\alpha = 0.81$).

The reliability of Competence of Environmental Control Scale in this study was $\alpha = 0.81$ (Students with high academic performances: 15-16 years old, $\alpha = 0.80$; 17-18 years old, $\alpha = 0.82$, while students with low academic performances: 15-16 years old, $\alpha = 0.79$; 17-18 years old, $\alpha = 0.81$).
Results

The Statistical Package for Social Science 17.0 (SPSS 17.0) was used for data analysis. The Mann-Whitney test (Mann & Whitney, 1947) was used to verify the differences between the two groups. It was applied to compare different groups in order to verify the differences between students with high and low academic performances (15-16 year old students vs. 17-18 year old ones; males vs. females).

We used the Mann-Whitney test because the data are ordinal but not interval scaled; furthermore, the sample size did not permit the use of an inferential statistic.

Approaches to Decisions

Table 2 summarizes the descriptive statistic related to decision-making strategies used by students with high and low academic performances (total) and the scores obtained by the youngest and oldest students and by both genders (males vs. females).

Table 2

| Mean and Standard Deviation (SD) of Students in Decision-Making Strategies (MDMQ) |
|-------------------------------------|-----------------|-----------------|-----------------|-----------------|
| Academic performances | Age levels | Gender | Vigilance | Hypervigilance | Procrastination | Buck passing |
|                        |              |        | M       | SD       | M       | SD       | M       | SD       |
| High                   | 15-16 years old | Male (15) | 1.31 | 0.28 | 0.82 | 0.32 | 0.53 | 0.31 | 0.39 | 0.21 |
|                        |              | Female (10) | 1.26 | 0.17 | 1.03 | 0.24 | 0.75 | 0.24 | 0.44 | 0.23 |
|                        |              | Total | 1.29 | 0.24 | 0.90 | 0.31 | 0.62 | 0.30 | 0.41 | 0.21 |
|                        | 17-18 years old | Male (12) | 1.34 | 0.20 | 0.72 | 0.28 | 0.58 | 0.30 | 0.19 | 0.10 |
|                        |              | Female (13) | 1.36 | 0.18 | 0.70 | 0.33 | 0.41 | 0.25 | 0.17 | 0.07 |
|                        |              | Total | 1.35 | 0.19 | 0.71 | 0.30 | 0.49 | 0.28 | 0.18 | 0.08 |
| Low                    | 15-16 years old | Male (17) | 1.19 | 0.24 | 0.94 | 0.22 | 0.71 | 0.33 | 0.54 | 1.16 |
|                        |              | Female (8) | 1.04 | 0.46 | 1.01 | 0.29 | 0.98 | 0.22 | 0.34 | 0.13 |
|                        |              | Total | 1.14 | 0.32 | 0.96 | 0.24 | 0.80 | 0.32 | 0.48 | 0.95 |
|                        | 17-18 years old | Male (17) | 1.19 | 0.20 | 0.84 | 0.22 | 0.63 | 0.27 | 0.20 | 0.09 |
|                        |              | Female (8) | 1.06 | 0.34 | 0.98 | 0.14 | 0.70 | 0.19 | 0.20 | 0.09 |
|                        |              | Total | 1.14 | 0.25 | 0.89 | 0.20 | 0.65 | 0.24 | 0.20 | 0.09 |

The Mann-Whitney test highlights significant differences between students with high and low academic performances. Students who perform well at school mostly choose the vigilance style with greater frequency ($U = 776.5$; $Z = 3.3$; $p = 0.001$); on the contrary, subjects with low academic performances mostly select the procrastination style ($U = 879.5$; $Z = 2.6$; $p = 0.01$). No statistical difference in hypervigilance ($U = 1,007.5$; $Z = 1.7$; $p = 0.09$) and buck passing ($U = 1,139$; $Z = 0.76$; $p = 0.44$) was found.

However, the youngest subjects have less functional decision-making styles: They tend towards hypervigilance ($U = 918.5$; $Z = 2.3$; $p = 0.02$), procrastination ($U = 895.5$; $Z = 2.47$; $p = .01$), and buck passing ($U = 469$; $Z = 5.38$; $p = 0.0001$) more than older students. No statistical difference in Vigilance Scale between age groups was found ($U = 1,185$; $Z = 0.45$; $p = 0.65$). No statistical difference was found in the gender comparison in all scales of decision-making.

The younger group analysis highlights the fact that students with lower academic performances tend to procrastinate more than those with high academic performances ($U = 209.5$; $Z = 2.02$; $p = 0.04$).

In the older group, students with high academic performances tend to be vigilant ($U = 162.5$; $Z = 2.95$; $p = 0.003$) more than those with lower academic performances and less hypervigilant than those with lower
academic performances ($U = 213.5; Z = 1.95; p = 0.05$).

More specifically, only considering students with high academic performances, 15-16 year old students tend to be hypervigilant ($U = 203.5; Z = 2.1; p = 0.03$) and to buck pass ($U = 77; Z = 4.6; p = 0.0001$) more than the 17-18 year old ones.

The younger subjects with a low academic performance select the procrastination ($U = 209.5; Z = 2.02; p = 0.04$) style and the buck passing style ($U = 166; Z = 2.84; p = 0.004$) more than 17-18 years old ones.

**Assertiveness**

Table 3 summarizes the descriptive statistic related to assertiveness used by students with high and low academic performances (total) and the scores obtained by the youngest and oldest students and by both genders (males vs. females).

<table>
<thead>
<tr>
<th>Academic performances</th>
<th>Age levels</th>
<th>Gender</th>
<th>Negative assertion</th>
<th>Personal limitations</th>
<th>Initiating assertiveness</th>
<th>Positive assertion</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>$M$</td>
<td>$SD$</td>
<td>$M$</td>
<td>$SD$</td>
</tr>
<tr>
<td>High</td>
<td>15-16 years old</td>
<td>Male</td>
<td>0.87</td>
<td>0.29</td>
<td>0.81</td>
<td>0.34</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Female</td>
<td>0.86</td>
<td>0.40</td>
<td>0.96</td>
<td>0.33</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Total</td>
<td>0.87</td>
<td>0.33</td>
<td>0.87</td>
<td>0.34</td>
</tr>
<tr>
<td></td>
<td>17-18 years old</td>
<td>Male</td>
<td>0.73</td>
<td>0.24</td>
<td>0.72</td>
<td>0.22</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Female</td>
<td>0.71</td>
<td>0.22</td>
<td>0.75</td>
<td>0.21</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Total</td>
<td>0.72</td>
<td>0.22</td>
<td>0.74</td>
<td>0.21</td>
</tr>
<tr>
<td>Low</td>
<td>15-16 years old</td>
<td>Male</td>
<td>0.79</td>
<td>0.18</td>
<td>0.82</td>
<td>0.40</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Female</td>
<td>1.09</td>
<td>0.48</td>
<td>1.11</td>
<td>0.34</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Total</td>
<td>0.88</td>
<td>0.33</td>
<td>0.91</td>
<td>0.40</td>
</tr>
<tr>
<td></td>
<td>17-18 years old</td>
<td>Male</td>
<td>0.76</td>
<td>0.33</td>
<td>0.73</td>
<td>0.34</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Female</td>
<td>0.63</td>
<td>0.21</td>
<td>0.66</td>
<td>0.32</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Total</td>
<td>0.72</td>
<td>0.30</td>
<td>0.71</td>
<td>0.33</td>
</tr>
</tbody>
</table>

The Mann-Whitney test highlights the significant differences between students with high and low academic performances: Students with poor grades show much more distress in Positive Assertion compared to students with high academic performances ($U = 878.5; Z = 2.57; p = 0.01$) and this is very clear in the younger subjects ($U = 194; Z = 2.31; p = 0.02$). No statistical difference in other scales (negative assertion: $Z = 0.07; p = 0.94$; personal limitations: $Z = 0.32; p = 0.74$; and initiating assertion: $Z = 0.88; p = 0.37$) was found.

Concerning the age variable, younger students show much more distress in communicating negative assertion ($U = 903; Z = 2.39; p = 0.02$) and personal limitations ($U = 954; Z = 2.05; p = 0.04$), compared to older subjects. No statistical difference comparing age groups of students with high academic performances was found. These results were confirmed even in subjects with low academic competences. No statistical difference between genders was found.

**Self-esteem**

Table 4 summarizes the descriptive statistic related to self-esteem reported by students with high and low academic performances (total) and the scores obtained by the youngest and oldest students and by both genders (males vs. females).
The analysis suggests that there are significant effects on academic performance: Subjects with high academic performances have higher scores in self-esteem, both on the Environmental Control Scale ($U = 596; Z = 4.5; p = 0.0001$) and the Academic Success Scale ($U = 430.5; Z = 5.6; p = 0.0001$), compared to peers with a low academic performance. No statistical differences between ages and genders were found.

The youngest students with high competences showed a better self-esteem in academic success ($U = 57.5; Z = 4.9; p = 0.0001$) and environmental control ($U = 122; Z = 3.7; p = 0.0001$) than those with lower academic competences.

Table 4

<table>
<thead>
<tr>
<th>Academic performances</th>
<th>Age levels</th>
<th>Gender</th>
<th>Academic success</th>
<th>Environmental control</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>15-16 years old</td>
<td>Male</td>
<td>1.10</td>
<td>0.12</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Female</td>
<td>1.16</td>
<td>0.14</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Total</td>
<td>1.12</td>
<td>0.13</td>
</tr>
<tr>
<td></td>
<td>17-18 years old</td>
<td>Male</td>
<td>1.01</td>
<td>0.14</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Female</td>
<td>1.06</td>
<td>0.13</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Total</td>
<td>1.04</td>
<td>0.14</td>
</tr>
<tr>
<td>Low</td>
<td>15-16 years old</td>
<td>Male</td>
<td>0.88</td>
<td>0.13</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Female</td>
<td>0.91</td>
<td>0.13</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Total</td>
<td>0.89</td>
<td>0.13</td>
</tr>
<tr>
<td></td>
<td>17-18 years old</td>
<td>Male</td>
<td>0.91</td>
<td>0.17</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Female</td>
<td>0.92</td>
<td>0.12</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Total</td>
<td>0.91</td>
<td>0.16</td>
</tr>
</tbody>
</table>

These results were confirmed even by older students: High competences seem to favor a better self-esteem in both academic success ($U = 159; Z = 2.98; p = 0.003$) and environmental control ($U = 179; Z = 2.59; p = 0.01$).

More specifically, considering only students with high academic performances, 15-16 years old students showed better self-esteem in academic success ($U = 208.5; Z = 2.02; p = 0.04$) than the 17-18 years old ones, but no statistical difference between ages in environmental control was found ($U = 277; Z = 0.69; p = 0.49$).

In students with low academic performances, no statistical difference between the age groups in academic success ($U = 294.5; Z = 0.35; p = 0.73$) and environmental control ($U = 262.5; Z = 0.97; p = 0.33$) was found.

**Discussion**

This research has provided interesting results concerning the relationship among decision-making, assertiveness, and self-esteem in high school students.

One of the main aims of the research was to verify if there were differences in decision-making, assertiveness, and self-esteem based on academic performance, gender, and age. The results obtained confirmed our hypotheses. Students with low scholastic performances show a greater use of dysfunctional decision-making styles; in fact, they tend to delay making decisions or approach their choices with anxiety. On the contrary, subjects with high performances adopt the vigilance style.

As foreseen in the hypothesis, there were also significant differences with regard to the confidence of making choices (decision-making self-efficacy) at school and in society. In fact, individuals with low academic
performances have provided a greater number of dysfunctional answers than students with high performances, who responded in a more adaptive way.

The differences between the two levels of academic performance were also found in relation to self-esteem, which is lower in students with low academic performances. The difference between the two groups of subjects is very clear in the school environment. This result seems to confirm, once again, the relationship between academic success and self-esteem in relation to academic performances, also with regards to assertiveness. Students with low academic performances show greater difficulty in behaving assertively and expressing personal limitations compared to students with high academic performances.

With regards to the age variable, the division of the sample into two groups of age (15-16 years old and 17-18 years old) allowed for some differences between the two age groups in decision-making styles to be noticed. Younger students have less functional decision-making styles than the 17-18 years old students: They tend to postpone or let others make decisions, they are hypervigilant, particularly in the school context, neglect making decisions; furthermore, they have lower levels of decision-making self-efficacy and more distress when communicating negative assertions and personal limitations, compared to older students. These results lead us to believe that, with the processing of the development, children improve their decisional abilities and develop a higher sense of security.

Finally, the results obtained with MDMQ did not allow gender differences to be found in decision-making styles.

From the analysis of correlations between the different measures used, it was found that the greater the self-esteem, the more vigilant the choices and the greater the sense of decision-making self-efficacy, and vice versa. The lower the self-esteem, the lower the belief that they can make good decisions: Decision-making styles are more oriented towards avoidance, procrastination, negligence, and hypervigilance.

Particularly significant is the relationship between less functional decision-making styles, negative feelings, and a higher perception of personal limitations: Assertiveness—basically social skills—is affected by a higher level of perceived distress. The difficulties in communicating desires and ideas (positive assertiveness) are closely related to the sense of ineffective decision-making, permeated by the lack of confidence.

Finally, there is a relationship between frequency of assertive behaviors (initiating assertiveness) and negligent decisional style. This could be explained by the fact that, as noted earlier, this “intuitive” style, in which action precedes reflection, could be related to an extroversion component, which causes one to be more open to initiating a conversation in front of a group. The characteristics of people with social assertiveness, or better with the capacity to introduce oneself, start a conversation with a stranger or a group of strangers, express one’s own opinions, could be linked to the tendency to undertake social relations in a spontaneous way, unmediated by processes of reflection and evaluation of the possible consequences and to an excessive security about one’s own capacity to establish positive relations and to solve problems without performing all the main steps of the processing of the information (encoding and interpretations of stimulus, clarification of the target, selection and implementation of the answer, and evaluation of the consequences).

The findings confirm the important role that good self-perception plays in adapting the best to one’s living environment. In addition, a state of uneasiness and tension caused by situations in which one cannot implement an assertive behavior, may inhibit a serene decision-making process. The ability to choose is also hindered when one does not feel self-confident or helpless in front of a decision. This finding is also confirmed by the results obtained from this research that showed significant correlations between learned helplessness and
dysfunctional decision-making. On the contrary, the vigilance style (adaptive decisional style) is related to adaptive responses. The results provided by the two scales (Competence of Environmental Control Scale and Academic Success Scale) of the test TMA show that more significant correlations emerged between the TMA test and the MDMQ.

**Conclusions**

Individuals, in order to best adapt to their living environment, need skills to face difficult situations that arise daily. Decisions and choices are certainly a challenge for everyone, especially for adolescents, who are in the delicate phase of development, have to make important decisions in the school environment and in their social relationships. Because of the complexity of this evolutionary task, often, they can make wrong choices that have negative consequences for their own futures (in social relationships, academic career, etc.). Therefore, interventions made in the school context are necessary to help students develop appropriate decision-making skills and strengthen their emotional and motivational abilities. A structured experimental type of training, directed to the empowerment of a functional decision-making style, could increase assertive behaviors and self-esteem levels. The development of self-esteem and the ability of making decisions (strictly related constructs) could be instrumental in the prevention and the decrease of academic failure, especially in students with low academic performances.

The present study focused on decision-making styles involves a sample of secondary school students. A longitudinal study would provide perspective and generate data on changes in decision-making patterns and cognition throughout the years.

The lack of cross cultural variety in this sample also limits the generalizations we can make as regards to the findings. Replication of the research on groups with different demographic characteristics might be another possibility for further research.

Some limitations of the study must be discussed. The relation identified in the study is correlation, not causation. This study represents only a first step in understanding the relations among decision-making processes, self-esteem, and assertiveness in an adolescent sample.

All data were collected using self-report questionnaires that are influenced by social desirability. Studies using behavioral measures, observational data, and other-report methodologies could be very useful to assess decision-making behaviors from another point of view.

**References**


THE ROLES OF THE SELF-ESTEEM, DECISION-MAKING, AND SOCIAL SKILLS


Mann, H. B., & Whitney, D. R. (1947). On a test of whether one of two random variables is stochastically larger than the other. *Annual of Mathematical Statistics, 18*, 50-60.


The Influence of Training and Various Forms on Increasing Employees’ Qualifications in European Enterprises

Joanna Żukowska
Warsaw School of Economics, Warsaw, Poland

The article focuses on the training and other various methods which will increase employees’ qualifications and capacities. The discussion will be divided into two parts: the theoretical background and the empirical results. These are the research results from our study in Polish and European, especially Polish enterprises. Both skills and qualifications are very popular and widely-used terms in the world of science and even government, and there has been a great increase of activities aiming towards the use of them amongst employees. The move is being supported by companies, institutions, public entities, and legislatives. According to the literature and business market reports, we can name some of the most desirable skills which are based on employers’ most frequent inquiries, which include: communication, information technology (IT) skills, specialist/professional knowledge, availability, valid driver’s license, required degree, creativity, and teamwork. In order to verify matters discussed above, empirical studies were carried out in December 2011. They were based on the interview questionnaires which mostly contained closed-ended questions. They also consisted of a pilot study and a pivotal study. Field research with the use of Computer Assisted Telephone Interview (CATI) method was used. In order to increase the quality of the results, two questionnaires were created: one for employers and the other for supervisors. The core of the two research questionnaires was very similar, but the questions addressed to supervisors were created to discover their opinions towards employees and the influence of an educated team on the firm’s condition.

Keywords: training, qualifications, employee, skills

Introduction

Currently, we can observe that many European companies, institutions, public entities, and even legislatives aim towards developing and expanding the professional qualifications and competencies of their employees, especially in the Polish business market.

Employee development has been even addressed in a 1989 policy of “Standard and Professional Training in the European Union” by the European Commission, which emphasizes professional training as a priority. By thoroughly examining literature sources, we can notice certain changes that related to employee development and training. It is often to be found that the evolution relates to already employed personnel versus new graduates just entering the job market (Merwin, 1992, p. 64). Additionally, personnel investments are most likely to be found in the service sector, closely followed by the production one.

It is of a great importance that we ask ourselves several questions about the reasons of the specific changes and how they actually work? One of the challenges determining the development is unemployment. We are not
only considering the unemployment rate, but also considering the demand for certain specialists and their surplus in other branches. This issue is closely related to the need of a more flexible approach of training and creating professional skills for employees. Even some companies, being supported by the Department of Education, are making an effort to use drilled knowledge into the job market (Armstrong, 2003, p. 132). Here, we come across an obstacle due to the positioning of two opposite objectives: the first objective—training related to the existing needs of a market, and the second objective—delivering the necessary education and knowledge in the future. It has become a trend that most of the current and future employees are offered general knowledge and training of various duties, tasks, or job aspects and criteria (Dudzikowa, 1994, p. 123). Moreover, there has been a great emphasis on the cognitive aspect of an employee that is slowly replacing the old approach of strictly skill-oriented personnel by encouraging and promoting personal creativity (Zukowska & Pindelski, 2011, p. 91). Another highly valued skill is the ability to enter and create interpersonal relationships (Bendkowski, 2008, p. 32). Hence, we can speculate whether one’s personality factors or temper will be considered as an important part of both job interviewing and professional development.

An Artificial Introduction to the Tools Increasing Skills and Qualifications

Both skills and qualifications are very popular and widely-used terms in the world of science and even government, and there has been a great increase of activities aiming towards the use of them amongst employees. The move is being supported by companies, institutions, public entities, and legislatives.

According to the literature and business market reports, we can name some of the most desirable skills which are based on employers’ most frequent inquiries, which include: communication, information technology (IT) skills, specialist/professional knowledge, availability, valid driver’s license, required degree, creativity, and teamwork (Kordel, Kornecki, & Kowalczyk, 2003, p. 12). Surprisingly, independence or negotiation skills were mentioned the least. Also, foreign languages were not found on the top of the list of the most wanted skills (see Figure 1).

By observing the activities of some enterprises, we can notice that they began registering developmental goals of their employers into their companies’ strategies (Sydänmaanlakka, 2003, p. 57). They aim towards
strategically planning the evaluation route of qualifications and moving away from only occasional actions. The aspect of developmental goals is frequently adjusted towards the actual needs of employees or the job position itself.

Based on current business market research and analysis, the most reoccurring forms of personal development of an employee are the following:

1. Training, workshops, and seminars;
2. Participation in projects and internships (Levy-Leboyer, 1997, p. 41);
3. Coaching and mentoring;
4. Postgraduate studies and Master of Business Administration (MBA).

In addition to the most frequent forms, we also find (Karwala, 2007, p. 54):

1. Assessment center;
2. Development center;

**Research Method and Research Practice Characteristics**

In order to verify matters discussed above, empirical studies were carried out in December 2011. They were based on the interview questionnaires which mostly contained closed-ended questions. They also consisted of a pilot study and a pivotal study. The pilot study of qualitative characteristics included a telephone interview with 15 people. It allowed for verifying the accuracy of questions included in the questionnaire, and this allowed the application of corrections and modifications. Field research (by M. Pindelski, Ph.D.) with the use of Computer Assisted Telephone Interview (CATI) method was used. In order to increase the quality of the results, two questionnaires were created: one for employers and the other for supervisors. The core of the two research questionnaires was very similar, but the questions addressed to supervisors were created to discover their opinions towards employees and the influence of an educated team on the firm’s condition.

A five-level rating scale, also known as the Likert Scale, was used in this research. The scale is used in measuring attitudes by responding to a series of statements about a topic. For the needs of this research, it was established as follows: Level 5—Strongly agree, Level 4—Rather agree, Level 3—Have no opinion, Level 2—Rather disagree, and Level 1—Strongly disagree.

The research practice included 90 subjects, in which 5.93% were micro-enterprises (10 employees), 30% as small enterprises (10-50 employees), 45.19% as average enterprises (50-249 employees), and 18.89% as large enterprises (more than 249 employees). The entire group included 82.59% as private companies, 3.70% as government agencies and departments, and 12.53% as foreign companies.

The research group of companies was divided into industries, 23.64% of all the companies were the production industry and 23.03% were the service industry, followed by 21.21% as the sales and 12.12% as the construction industry. Distribution was 6.06%, transportation as 5.45%, and the motor industry as 4.85%. Delivery and hospitality were 1.21% each. Both education and logistics were 0.61%.

The research included 270 employees of micro, small, average, and large companies. Supervisors were 15.93% and employees were more than 84.07% of the research companies.

Two slightly different questionnaires were used in the research. One was used by supervisors and the other by employees.

For the purpose of this article, the research analysis will be based on the results obtained from the
supervisors.

Referring to companies’ legal matters, 88.10% supervisors claimed that they belong to private companies, 9.52% are government companies, and only 2.38% are foreign companies.

Describing the companies’ size, 44.19% of supervisors described them as small, 34.88% as average, 16.28% as large, and only 4.65% were described as micro.

Results

The study was initiated by verifying the fact of competence testing in companies. Only 24.23% of supervisors claimed that current employees were undergoing competence testing, and 75.77% of those questioned claimed that such testing was not implemented by their companies (see Table 1).

Table 1
Employees Undergoing Competence Testing in Their Current Companies

<table>
<thead>
<tr>
<th>Yes</th>
<th>No</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number</td>
<td>Percentage</td>
</tr>
<tr>
<td>55</td>
<td>24.23%</td>
</tr>
</tbody>
</table>

The next step included questioning supervisors about the increase in employees’ level of motivation thanks to the participation in trainings. Among the supervisors, 34.88% of them claimed that trainings have definitely increased the employees’ level of motivation and 27.91% claimed that trainings increased their motivation. A very close percentage of supervisors questioned had no opinion (27.91%), whereas no one from the group claimed that they absolutely disagreed with the fact that professional training increases the employees’ motivation (see Table 2).

Table 2
Level of Increasing the Employees’ Motivation by Giving Trainings—Supervisors’ Opinions

<table>
<thead>
<tr>
<th>1 (Strongly disagree)</th>
<th>2 (Rather disagree)</th>
<th>3 (Have no opinion)</th>
<th>4 (Rather agree)</th>
<th>5 (Strongly agree)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number</td>
<td>Percentage</td>
<td>Number</td>
<td>Percentage</td>
<td>Number</td>
</tr>
<tr>
<td>0</td>
<td>0.00%</td>
<td>4</td>
<td>9.30%</td>
<td>12</td>
</tr>
</tbody>
</table>

The next issue was directed towards employees and supervisors about the level of employees’ tendencies to change jobs due to the increase in their professional skills in past years (see Tables 3 and 4). According to employees, more than 15% answered that they absolutely or rather agree with it (7.05% and 8.37%). The highest percentage of the subjects of this study (33.48%) answered that they rather disagree, and about half of people surveyed had no opinion (25.11%) or answered that they strongly disagree (25.99%). The answers formed among supervisors were slightly different with 13.95% of those surveyed saying that they rather agree with the answer, 27.91% have no opinion, and 9.30% firmly disagree. More than a half of supervisors (48.84%) rather disagree, and the percentage of people who strongly agree is 0%.

Table 3
Tendencies of Employees to Change Jobs Related to the Increase in Their Professional Skills in Past Years—Employees’ Opinions

<table>
<thead>
<tr>
<th>1 (Strongly disagree)</th>
<th>2 (Rather disagree)</th>
<th>3 (Have no opinion)</th>
<th>4 (Rather agree)</th>
<th>5 (Strongly agree)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number</td>
<td>Percentage</td>
<td>Number</td>
<td>Percentage</td>
<td>Number</td>
</tr>
<tr>
<td>59</td>
<td>25.99%</td>
<td>76</td>
<td>33.48%</td>
<td>57</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Number</th>
<th>Percentage</th>
<th>Number</th>
<th>Percentage</th>
<th>Number</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>39</td>
<td>16</td>
<td>16</td>
<td>8.37%</td>
<td>16</td>
<td>7.05%</td>
</tr>
</tbody>
</table>
Table 4
*Tendencies of Employees to Change Jobs Related to the Increase in Their Professional Skills in Past Years—Supervisors’ Opinions*

<table>
<thead>
<tr>
<th></th>
<th>1 (Strongly disagree)</th>
<th>2 (Rather disagree)</th>
<th>3 (Have no opinion)</th>
<th>4 (Rather agree)</th>
<th>5 (Strongly agree)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number</td>
<td>Percentage</td>
<td>Number</td>
<td>Percentage</td>
<td>Number</td>
<td>Percentage</td>
</tr>
<tr>
<td>4</td>
<td>9.30%</td>
<td>21</td>
<td>48.84%</td>
<td>12</td>
<td>27.91%</td>
</tr>
</tbody>
</table>

In the following step of the study, supervisors were asked about the level of appreciation towards the active employees’ personal development. Supervisors that strongly agree composed 27.91% of the body while 39.53% rather agree. More than one fifth of the respondents had no opinion (20.93%). Only 9.30% of the respondents disagreed with this statement and 2.33% strongly disagreed (see Table 5).

Table 5
*The Company’s Level of Appreciation of an Active Personal Development of Employees—Supervisors’ Opinions*

<table>
<thead>
<tr>
<th></th>
<th>1 (Strongly disagree)</th>
<th>2 (Rather disagree)</th>
<th>3 (Have no opinion)</th>
<th>4 (Rather agree)</th>
<th>5 (Strongly agree)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number</td>
<td>Percentage</td>
<td>Number</td>
<td>Percentage</td>
<td>Number</td>
<td>Percentage</td>
</tr>
<tr>
<td>1</td>
<td>2.33%</td>
<td>4</td>
<td>9.30%</td>
<td>9</td>
<td>20.93%</td>
</tr>
</tbody>
</table>

The following question that asked to the respondents was about the growth rate of the effectiveness of carried out tasks by current employees related to participation in professional trainings. According to 20.93% of all supervisors questioned, they strongly agreed with this fact. On the other hand, 37.21% of those rather agreed, 39.53% had no opinion, and only 2.33% rather disagreed. No one though strongly disagreed with the statement (see Table 6).

Table 6
*Growth Level of the Effectiveness of Tasks Carried out by Currently Employed Related to the Participation in Professional Trainings—Supervisors’ Opinions*

<table>
<thead>
<tr>
<th></th>
<th>1 (Strongly disagree)</th>
<th>2 (Rather disagree)</th>
<th>3 (Have no opinion)</th>
<th>4 (Rather agree)</th>
<th>5 (Strongly agree)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number</td>
<td>Percentage</td>
<td>Number</td>
<td>Percentage</td>
<td>Number</td>
<td>Percentage</td>
</tr>
<tr>
<td>0</td>
<td>0.00%</td>
<td>1</td>
<td>2.33%</td>
<td>17</td>
<td>39.53%</td>
</tr>
</tbody>
</table>

Subsequently asked question towards employees and their supervisors was about the growth rate of commitment to work by employees affected by participation in professional trainings. The supervisors who definitely agree composed 11.63% of the body, whereas 32.56% rather agree. More than a half of respondents had no opinion (44.19%). Only 9.30% of respondents disagreed with the statement and 2.33% strongly disagreed (see Table 7).

Table 7
*Growth Level of the Commitment to Work by Employees Affected by Participation in Professional Trainings—Supervisors’ Opinions*

<table>
<thead>
<tr>
<th></th>
<th>1 (Strongly disagree)</th>
<th>2 (Rather disagree)</th>
<th>3 (Have no opinion)</th>
<th>4 (Rather agree)</th>
<th>5 (Strongly agree)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number</td>
<td>Percentage</td>
<td>Number</td>
<td>Percentage</td>
<td>Number</td>
<td>Percentage</td>
</tr>
<tr>
<td>1</td>
<td>2.33%</td>
<td>4</td>
<td>9.30%</td>
<td>19</td>
<td>44.19%</td>
</tr>
</tbody>
</table>

In the next phase, the supervisors were asked about the amount of days spend on training in the last year.
The majority 28.97% spent 3-4 days, then 19.63% spent 9-10 days (see Table 8).

### Table 8
**The Amount of Days Spent on Training in the Last Year—Employees’ Opinions**

<table>
<thead>
<tr>
<th>Number</th>
<th>1-2 days</th>
<th>3-4 days</th>
<th>5-6 days</th>
<th>7-8 days</th>
<th>9-10 days</th>
<th>Above 10 days</th>
</tr>
</thead>
<tbody>
<tr>
<td>15</td>
<td>14.02%</td>
<td>31</td>
<td>28.97%</td>
<td>19</td>
<td>17.76%</td>
<td>6</td>
</tr>
<tr>
<td>6</td>
<td>5.61%</td>
<td></td>
<td>19.63%</td>
<td>21</td>
<td>19.63%</td>
<td>15</td>
</tr>
<tr>
<td>15</td>
<td>14.02%</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

In the next phase, the supervisors were asked about the level selection of their employees who take postgraduate studies. The majority 72.09% answered that they did not send their employees to take postgraduate studies, 20.93% agreed, whereas 6.98% did not know if employees are being sent to postgraduate schools (see Table 9).

### Table 9
**Employees’ Secondment to Take Postgraduate Studies—Supervisors’ Opinions**

<table>
<thead>
<tr>
<th>Yes</th>
<th>No</th>
<th>Do not know</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number</td>
<td>Percentage</td>
<td>Number</td>
</tr>
<tr>
<td>9</td>
<td>20.93%</td>
<td>31</td>
</tr>
</tbody>
</table>

The following question directed to supervisors was about the growth rate of employees’ effectiveness at work related to participation in postgraduate studies. According to the supervisors, 10% of people interviewed strongly agreed with this statement, 70% of them rather agreed, and 20% had no opinion (see Table 10).

### Table 10
**Growth Level of Employees’ Effectiveness Related to Participation in Postgraduate Studies—Supervisors’ Opinions**

<table>
<thead>
<tr>
<th>1 (Strongly disagree)</th>
<th>2 (Rather disagree)</th>
<th>3 (Have no opinion)</th>
<th>4 (Rather agree)</th>
<th>5 (Strongly agree)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number</td>
<td>Percentage</td>
<td>Number</td>
<td>Percentage</td>
<td>Number</td>
</tr>
<tr>
<td>0</td>
<td>0.00%</td>
<td>2</td>
<td>20.00%</td>
<td>7</td>
</tr>
<tr>
<td>1</td>
<td>10.00%</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Employees being selected to participate in international internship also underwent the analysis. According to supervisors, 4.65% claimed that their employees were sent to participate in international internships, 90.70% denied, and 4.65% did not know (see Table 11).

### Table 11
**The Selection of Employees Participating in International Internships—Supervisors’ Opinions**

<table>
<thead>
<tr>
<th>Yes</th>
<th>No</th>
<th>Do not know</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number</td>
<td>Percentage</td>
<td>Number</td>
</tr>
<tr>
<td>2</td>
<td>4.65%</td>
<td>39</td>
</tr>
</tbody>
</table>

Subsequently, respondents were asked if the growth rate of employees’ effectiveness at work increased due to involvement in international internships. One hundred percent of the supervisors strongly agreed (see Table 12).

The supervisors were also asked about employees being assigned to internships with different branches of their companies. According to the data, 20.93% confirmed sending their employees to intern with different branches within their own company inside the country, 74.42% denied, and 4.65% did not know (see Table 13).
Table 12
Growth Level of the Effectiveness of Employees’ Current Positions That Increased by Participating in International Internships—Supervisors’ Opinions

<table>
<thead>
<tr>
<th>Number</th>
<th>Percentage</th>
<th>Number</th>
<th>Percentage</th>
<th>Number</th>
<th>Percentage</th>
<th>Number</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>0.00%</td>
<td>0</td>
<td>0.00%</td>
<td>0</td>
<td>0.00%</td>
<td>0</td>
<td>0.00%</td>
</tr>
<tr>
<td>1</td>
<td>100.00%</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Table 13
Assigning Employees to Internships With Different Branches of Their Own Companies—Supervisors’ Opinions

<table>
<thead>
<tr>
<th>Yes</th>
<th>Percentage</th>
<th>No</th>
<th>Percentage</th>
<th>Do not know</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>9</td>
<td>20.93%</td>
<td>32</td>
<td>74.42%</td>
<td>2</td>
<td>4.65%</td>
</tr>
</tbody>
</table>

In the following phase, respondents were asked about the growth rate of effectiveness of employees’ current positions related to participating in internships with different branches of their own companies. According to supervisors, 22.22% strongly agreed with the statement, 33.33% rather agreed, next 33.33% had no opinion, and 11.11% rather disagreed (see Table 14).

Table 14
The Growth Level of the Effectiveness of Employees’ Current Positions, Increased by Part Taking in Internships With Different Branches of Their Own Companies—Supervisors’ Opinions

<table>
<thead>
<tr>
<th>1 (Strongly disagree)</th>
<th>2 (Rather disagree)</th>
<th>3 (Have no opinion)</th>
<th>4 (Rather agree)</th>
<th>5 (Strongly agree)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number</td>
<td>Percentage</td>
<td>Number</td>
<td>Percentage</td>
<td>Number</td>
</tr>
<tr>
<td>0</td>
<td>0.00%</td>
<td>1</td>
<td>11.11%</td>
<td>3</td>
</tr>
<tr>
<td>2</td>
<td>22.22%</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

The respondents were also asked about the growth rate of company’s competitive advantage due to internships with different branches within their own companies. From the data, 44.44% of supervisors rather agreed with this statement, 44.44% of them had no opinion, and only 11.11% strongly agreed (see Table 15).

Table 15
The Growth Level of the Company’s Competitive Advantage Due to Internships With Different Branches Within Their Own Company—Supervisors’ Opinions

<table>
<thead>
<tr>
<th>1 (Strongly disagree)</th>
<th>2 (Rather disagree)</th>
<th>3 (Have no opinion)</th>
<th>4 (Rather agree)</th>
<th>5 (Strongly agree)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number</td>
<td>Percentage</td>
<td>Number</td>
<td>Percentage</td>
<td>Number</td>
</tr>
<tr>
<td>0</td>
<td>0.00%</td>
<td>0</td>
<td>0.00%</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

The supervisors were also asked about the participation of their employees in assessment center. Only 9.30% claimed that employees were participating in the assessment center, 88.37% denied, and 2.33% did not know (see Table 16).

Table 16
Employees’ Participation in the Assessment Center Within the Past Two Years—Supervisors’ Opinions

<table>
<thead>
<tr>
<th>Yes</th>
<th>No</th>
<th>Do not know</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number</td>
<td>Percentage</td>
<td>Number</td>
</tr>
<tr>
<td>4</td>
<td>9.30%</td>
<td>38</td>
</tr>
</tbody>
</table>

The respondents were also asked about the growth level of the effectiveness of the employees’ current
positions related to participation in the assessment center. Seventy-five percent of them strongly agreed with this statement and 25% rather agreed (see Table 17).

Table 17

| Growth Level of the Effectiveness of Employees’ Current Position Related to Participation in the Assessment Center—Supervisors’ Opinions |
|---|---|---|---|---|---|
| Number | Percentage | Number | Percentage | Number | Percentage | Number | Percentage |
| 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 1 | 25.00% | 3 | 75.00% |

Next, the supervisors were asked about the participation of their employees in the development center. Only 9.30% claimed that the employees were participating in the development center, whereas 90.70% responded “No” (see Table 18).

Table 18

| Employees’ Participation in the Development Center in the Past Two Years—Supervisors’ Opinions |
|---|---|---|
| Yes | Number | Percentage | No | Number | Percentage | Do not know | Number | Percentage |
| 4 | 9.30% | 39 | 90.70% | 0 | 0.00% |

The respondents were asked about the effectiveness of the employees’ current positions related to participation in the development center as well. Forty percent of them strongly agreed and 60% rather agreed (see Table 19).

Table 19

| Growth Level of the Effectiveness of Employees’ Current Positions Related to Participation in the Development Center—Supervisors’ Opinions |
|---|---|---|---|---|---|
| Number | Percentage | Number | Percentage | Number | Percentage | Number | Percentage |
| 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 3 | 60.00% | 2 | 40.00% |

Additionally, the respondents were asked which forms of employee’s competence development in their current positions are the most relevant. They were presented with eight forms. While referring to trainings, 4.65% answered that they strongly agreed, 2.33% rather agreed, and 20.93% had no opinion. More than 72% of the respondents answered that they rather agreed (34.88%) with it or strongly agreed (37.21%).

The following response refers to taking postgraduate studies. Only 4.65% claimed that they strongly agree, 2.33% rather disagree, 20.93% rather agree. More than one fourth of the respondents had no opinion, 18.60% rather disagreed with this statement, and 30.23% strongly disagreed.

The third most relevant form was coaching. According to the supervisors, 44.19% of those surveyed answered that they strongly disagreed with this statement because this is the most relevant form of competence development, 16.82% rather disagreed, and 13.95% had no opinion. More than 18% of respondents (18.60%) answered that they rather agreed with this statement and 6.98% strongly agreed (see Table 20).

The fourth part was mentoring. From Table 20, 4.65% of the supervisors answered that they strongly agreed that this is the most relevant form of competence development, 6.98% rather agreed, whereas 27.91% had no opinion, 13.95% rather disagreed, and 46.51% strongly disagreed.
Table 20

| Most Relevant Forms of Employee’s Competence Development—Supervisors’ Opinions |
|---------------------------------|-----------------|-----------------|-----------------|-----------------|-----------------|
|                                 | 1 (Strongly disagree) | 2 (Rather disagree) | 3 (Have no opinion) | 4 (Rather agree) | 5 (Strongly agree) |
|                                 | Number | Percentage | Number | Percentage | Number | Percentage | Number | Percentage | Number | Percentage |
| Trainings                       | 2      | 4.65%      | 1      | 2.33%     | 9      | 20.93%     | 15     | 34.88%     | 16     | 37.21%     |
| Postgraduate studies            | 13     | 30.23%     | 8      | 18.60%    | 11     | 25.58%     | 9      | 20.93%     | 2      | 4.65%      |
| Coaching                        | 19     | 44.19%     | 7      | 16.28%    | 6      | 13.95%     | 8      | 18.60%     | 3      | 6.98%      |
| Internship in different branch of the same company | 29 | 67.44% | 2 | 4.65% | 6 | 13.95% | 3 | 6.98% | 3 | 6.98% |
| International internship        | 34     | 79.07%     | 3      | 6.98%     | 3      | 6.98%     | 2      | 4.65%     | 1      | 2.33%      |
| Assessment center               | 31     | 72.09%     | 4      | 9.30%     | 3      | 6.98%     | 2      | 4.65%     | 3      | 6.98%      |
| Development center              | 33     | 76.74%     | 2      | 4.65%     | 3      | 6.98%     | 4      | 9.30%     | 1      | 2.33%      |

The next part referred to internship in a different branch of the same company. A high percentage of 67.44% of the supervisors answered that they strongly disagreed with this statement, 4.65% rather agreed, 13.95% had no opinion, and a little over 13% of respondents answered that they rather agreed (6.98%) or strongly agreed (6.98%) with the statement above.

In reference to the sixth part, the supervisors answered by impressive number of 79.07% that they strongly disagreed with the statement that this is the most relevant form of competence development, 6.98% rather disagreed, the same percentage number (6.98%) had no opinion, 4.65% rather agreed, and only 2.33% strongly agreed.

The seventh part contained the answer to the assessment center. The supervisors answered by 72.09% that they strongly disagreed with the statement that this is the most relevant form of competence development, 9.30% rather disagreed, 6.98% of the supervisors strongly disagreed with the statement that this is the most relevant form of competence development, 9.30% rather disagreed, 6.98% of those surveyed had no opinion, only 4.65% of the supervisors rather agreed, and 6.98% strongly agreed with the statement.

The last thematic part was the development center. The supervisors, just like in the previous part, claimed that they strongly disagreed (76.74%) with the statement, only 4.65% rather disagreed, 6.98% had no opinion, whereas slightly more that 11% of the supervisors rather agreed (9.30%) or strongly agreed (2.33%) with the statement.

Conclusions

Considering the collected data above, we can state that the employees’ development, along with trainings, is registered in a company’s strategies. Interestingly enough, competence testing is not quite popular among companies functioning on the Polish business market, whereas 75% of those hold descriptions of the job positions.

The supervisors observe that trainings positively influence the motivation of their subordinates. They also create higher involvement in work performed.
They are also aware of the results reached by the role of trainings. The vast majority of those surveyed claim that they are directly affecting the effect of their employees’ results.

Particularly noteworthy is the fact that while trainings are being commonly recognized in relation to other forms, methods, and increasing skills.

As an example, only as few as 15% of respondents participated in postgraduate studies, from which, only every fourth one was being delegated by their employers which naturally means that the education was being financed by the company. Interestingly enough, more than 70% of the supervisors claimed that thanks to the enrollment in postgraduate studies, the efficiency in the workplace greatly increased.

Similarly enough, the postgraduate studies were not the direction of investments or delegations for employees.

However, national or international internships were not being received positively, considering both facts, the delegation itself and their effectiveness on work. On the contrary, frequent answers stated that they have no influence on the effectiveness whatsoever. The supervisors were very reluctant towards this form of education. Interestingly enough, despite such reluctance towards internships, the vast majority of respondents stated that they have a positive influence on a company’s competitive advantage.

Both the assessment center and the development center were developmental tools questioned. A marginal group of employees participated in them, yet, the respondents are greatly aware of their roles and believe that they majorly improve the effectiveness of employees’ current position. A very similar approach was taken towards the question of mentoring and coaching.

Analyzing the perception of the accuracy of mentioned educational tools, both surveyed groups gave trainings the highest ratings, while the rest of the forms became secondary.

The supervisors notice a very significant influence of trainings on the organization’s competitive advantage.

References
Dudzikowa, M. (1994). Auto-creative competence—Whether and how are they available to obtain in the course of pedagogical studies. Ewolucja tożsamości pedagogiki, 1, 123-134.
Competence Development Assessment in Teacher Education:  
Design and Evaluation of Portfolio Exams

Thomas Prescher, Frederick Schulz  
Technical University of Kaiserslautern, Kaiserslautern, Germany

Teacher education should be oriented toward competency development. The constructive alignment of the assessment and learning processes is necessary in consequence of existing contradictions among institutional, professional, and self-expectations in pedagogical performance. Competency development and certification should not be limited to professional output, which is often based on knowledge reproduction, as in classical tests. Rather, the portfolio examination project presented in one module of the teacher education program at the Technical University of Kaiserslautern combines formative and summative assessment as a holistic competency development assessment. This kind of assessment adopts the idea of a change in learning culture driven by a learner-centered pedagogy. The core of this concept is a junction of self, peer, and training staff assessment in a variety of situations. The main purpose of the assessment approach is to achieve an ability to perform in occupational contexts. The portfolio exam attests to the completeness, profundity, and logical conclusiveness of self-reflection. Students must examine the complex criteria of the curricular standards in teacher education released by the Ministry of Education, in order to reflect on their own development toward becoming a teacher. Thus, dialogic action research (expert interviews as strengths, weakness, opportunity, and threats (SWOT) analysis and analysis of artifacts) was conducted in order to ascertain whether the teaching was indeed competency-based and whether the portfolio examination is a valid tool to present and assess competency development. To this end, the categories of a content analysis are presented.

Keywords: portfolio, competence development, assessment, teacher training, assessment method

Introduction

A holistic competency development assessment adopts the idea of a change in learning culture driven by a learner-centered pedagogy. The core of this concept is a junction of self, peer, and training staff assessment in a variety of situations. The main purpose of the assessment approach is to achieve the ability to perform in occupational contexts. The portfolio exam attests to the completeness, profundity, and logical conclusiveness of self-reflection. Students must examine the complex criteria of the curricular standards in teacher education released by the Ministry of Education, in order to reflect on their own development toward becoming a teacher. Thus, dialogic action research (expert interviews as strengths, weakness, opportunity, and threats (SWOT) analysis and analysis of artifacts) was conducted in order to ascertain whether the teaching was indeed competency-based and whether the portfolio examination is a valid tool to present and assess competency development. To this end, the categories of a content analysis are presented.
Competency Development Assessment in Teacher Education

Becoming a teacher means treading a path through multiple institutions, first in one’s own role as a school pupil, then as a student at the university attending seminars, in order to prepare via a dual system for the future professional field of “School as Organization” (Arnold & Prescher, 2012). This is not an easy path, for as Lederle (2008) emphasized, organizations, such as universities or schools, in-depth learning is focused on “formal rules, procedures, and norms for defining the formal structure of organizations, as well as symbolic systems, cognitive scripts, and moral templates...” (Hall & Taylor, 1996, as cited in Lederle, 2008) as the means to meet institutional expectations. However, the goal of teacher training is to build competencies which enable teachers to apply them later in the classrooms and in the daily routine at schools. It is not enough for the learners to “know about” the field, in order to actualize their performance possibilities, they must possess strategies and models that allow the knowledge to become realized as work performance (L. M. Spencer & S. M. Spencer, 1993). Part of developing this competence is to reflect on the external demands, that is, the social and professional expectations, as compared to the self-expectation of the individual expressed in attitudes, mindset, values, and tendencies (Prescher, 2009).

Competence development and certification can thus not focus solely on subject knowledge, as is the case with classical certification testing; rather, an approach is needed that also picks up on various aspects of the different social spheres of action of the students and submits them to an evaluation. In that way, with the concept of constructive alignment (Biggs, 1996) (see Figure 1), the deliberations concerning the development of a competence development assessment within the framework of a module-oriented portfolio form follows up on one of the fundamental psychological questions: Do inner values and attitudes determine individual behavior, or is overt behavior the result of external influences and orientations (Gangestad & Snyder, 2000)?

For the competency development of a student as a future teacher—for his/her own profile building, future professional satisfaction, and standards when fulfilling the formal expectations—the above concept is central. To become a capable teaching professional, it is assumed (Prescher, 2009, p. 50), to begin with a coherent perspective on the relationship of external influence factors, requirements, and orientations (exogenous orientation) to internal values and attitudes (endogenous orientation). The portfolio exam, with its various

---

**Figure 1.** Constructive alignment in the competency development assessment.
instruments that accompany the learning process, combines the bottom-up question “Where am I as a student and future teacher on my path according to my previous understanding?” with the top-down one “What direction do I want my development to take, and what strategies, steps, and consequences are needed, or rather expected for that to happen?”.

The Portfolio Format as a Competency Development Assessment

Any examination determines what a student learns: A teaching program that targets competence development thus needs to have examination formats that are appropriate to the intended outcome. With this in mind, the Technical University of Kaiserslautern, as a part of the competition “Excellence in Teaching”, sponsored a project for the trial and introduction of innovative testing formats for the teacher training program that would promote competency orientation within the framework of the Bologna Reform. Toward this aim, a development portfolio (Baumgartner, 2012) was introduced in Module 2 as a module exam.

Module 2 of the pedagogical study unit covers the topics of didactics, communication, and media in four elective courses (see Figure 2) (Ministry of Education, Science, Further Education and Culture of Rhineland-Palatinate, 2007). Following the concept of constructive alignment, the courses were conceived in such a way that they contained reflective elements as well as offering opportunities to make one’s competencies and “action-products” visible and to arrange these using teacher-, peer-, and self- feedback. As is usual in the portfolio context, these components were designated as artifacts. To provide guidance, students’ participation in the seminar was framed by two elements for reflection: At the beginning (see Figure 3), the students gave an account of their starting situation as well as a formulation of their personal goals and expectations of the seminar. At the end of every seminar, there was a final stock-taking, which supported by artifacts, the students gave formal self-feedback on their own learning process, referencing particularly the initially articulated goals and expectations. Thus, learners became aware of their process of competence development, and at the same time, it became transparent for the examiners.

At the end of the four individual module activities, one of the lecturers was selected as the examiner.
In a reflection phase lasting 14 days, the students generated the reflection text in which the relationship was established between the students’ own development and their individual expectations (personal goals); the professional expectations (educational standards); and the institutional expectations (explicitly in the lecturer’s feedback, implicitly in the seminar design). With the approach described above, the portfolio exam aimed to be a competence-development assessment in a dual sense: It served as a summative assessment for grading purposes, and as a formative assessment for the students’ own competence development. It also contributed to developing their evaluation skills as well as their diagnostic and reflective competencies, which are explicit goals of the teaching program (Ministry of Education, Science, Further Education and Culture of Rhineland-Palatinate, 2007).

The structure of the learning process was documented by selected artifacts and was thus comprehensible and verifiable to the examiners. In addition, external experiences and activities, for example, school internships and part-time jobs, provided an opportunity for acquiring competencies and for collecting artifacts. The examiner then evaluated the whole portfolio according to a defined evaluation grid. The corresponding guidelines for the evaluations consisted of more detailed instructions for the categories of formal criteria, completeness, and coherence.

**The Results of the Accompanying Research as Dialogical Praxis Research on Process-Optimization**

As part of the research on the portfolio exam as dialogical applied research, the following questions were considered: 1. Whether the courses offered were effective in developing competence in the manner intended by a competency-oriented university program; and 2. Whether the portfolio exam gave evidence of this. The aim was not so much to observe effects in an evidence-based manner or to argue over constructs (Arnold, 2005). According to Böttcher and Lindart (2009), such an undertaking would seem questionable in any case, epistemologically, it has not been conclusively clarified which concepts of evaluation can be best applied to the field of pedagogy and didactics. The point was not just to measure the effects statistically, but to focus on how processes are perceived and how they develop in educational practice.

In the present study, the research process was constructed as part of a program for change management within a university development process based on “dialogical praxis research” (Fahr, 2008). According to this concept, changes are not understood as mechanistic, but are specifically oriented toward the goals and needs of
the organization and its members, so that through the generation of data, feedback can be given concerning the modification of performance (Hasenzagl, 2009). In this study, in the period one (June 2011 to November 30, 2012), an episodic problem-centered expert interview provided data for a strengths, weakness, opportunity, and threats (SWOT) analysis involving 15 students who were taking part in the portfolio examination and six lecturers. The analysis was supplemented by the assessment of the student portfolios as a qualitative artifact. The data were then analyzed using the method of qualitative content analysis.

**Result 1: Preoccupation With Oneself Is Competence—Effective**

The students found the portfolio exam to be a “true challenge” (interview student (IS) 1, 3). The requirements (IS 3, 6; interview lecturers (ID) 2), the vocabulary (“artifact”) (IS 2, 8), and the explicit reflection about one’s own actions (IS 8, 9) all were unaccustomed, and at first, unclear. With the help of the tools (key questions and outline guidelines), however, all the students learned to understand the novel requirements and to feel capable of handling them: “After I had the (reflection) guideline, it was easy” (IS 2).

An important factor in their success was seen to be the students’ systematic preparation (IS 12, 3). When they did not occur, the after-the-fact collection of artifacts became very laborious (IS 4). The students who had actually collected artifacts while attending the seminar and who had documented their beginning situation all described the effort of creating the portfolio as “slight” or “negligible” (IS 1, 3); “It just takes care of itself” (IS 1). The continuing procedural tasks demanded and encouraged a more intensive, more focused, and more active participation in the courses (ID 6), since achieving well-ordered results promoted the students’ own interests (IS 15): “I told everyone: Collect artifacts without fail!”.

This constant confrontation with the instructional content, which began in the preparatory stage and with the selection of a seminar (IS 14) and continued up to the post-processing of the reflection stage (IS 1, 2, 3), on the one hand, necessitated a recapitulation of the material, which was comparable according to some students (IS 11, 10), or even more comprehensive than (IS 3) studying for a test. On the other hand, in the reflection phase, new relationships were developed among the seminar topics (IS 1), and professional cross-connections emerged (IS 13). Some students discovered improved powers of observation (IS 3) and a heightened consciousness of their own person (IS 1) as a consequence of the portfolio exam, others identified a diffuse, not explicitly nameable competency acquisition from the confrontation with their learning process (IS 12). A number of students considered the involvement with “myself” more rewarding, and at the same time, simpler that occupying themselves with an artificial topic in a research paper (IS 1, 3).

**Result 2: Competence-Oriented Reflection Requires an Experience-Oriented Traineeship**

For the lecturers, the efficiency of the assessment form used is naturally an important consideration. In this case, the effort required to assess the portfolio was more or less comparable to that of a research paper (ID 2, 3).

The main reason for the difficulty was the unaccustomed requirements (ID 4, 5), particularly due to the lecturers’ lack of experience with the evaluation criteria (ID 1). Many cross-references (ID 1, 2, 3) and the ever-changing frames of reference (an individual student instead of a mostly familiar scholarly topic) (ID 5) made the writing of the reflection texts demanding and required of the examiner an intensive engagement with the text.

All the lecturers mentioned a certain effect the portfolios had on the seminar design; the effect was less in terms of “teaching performance feedback” (ID 3) than of indications about which seminar content “caught on”
(ID 4, 5, 6), that is connected with the students (ID 2), and could be fitted into the students’ construct of professional life (ID 1). Furthermore, the organizational requirements of the portfolios gave impulses for the students to consciously incorporate reflective elements into the course structure (ID 2, 4) and more chances to offer experience-fostering activities (ID 1). Altogether, it became clear that the seminar designs had to be changed, because it was obvious that reading courses, in which the students read texts and then presented a text, did not develop competence in themselves (ID 3, 6; IS 1, 9, 13). Thus, components in which students reflected on their own learning theory (Arnold, 2012), as well as received experience-building methods training, were both taken as indispensable to developing a quality competence-building university curriculum.

With an altered seminar design, the competence development aspect of the portfolio was also seen more clearly by the lecturers: The learners reflected their competence development in relation to their own experience and the educational standards (ID 1, 3) and “What they believed was relevant” (ID 1), that is an intuitive job profile. But the university curriculum revealed its limits especially in the areas of emotional and personal competencies; in these areas, the instruction was supposed to contribute to personality development, but “did not get to the core of this competency” (ID 5).

Result 3: The Portfolio Exam as a Mirror of Competence Development

The qualitative content analysis of the portfolio texts as artifact analysis yielded four categories of statements signaling increasing reflectivity in relation to the students’ own competency development.

Descriptive statements. This category included statements on a purely descriptive level, in which an enumeration of the seminar contents, a description of artifacts, and an account of the students’ actions or products were given.

Competence statements. In the portfolios, there are statements about the students’ own competencies. Here, one can identify all the three competence areas of the module (media, didactics, and communication). The students directed their competency development specifically toward concepts, like perceive, know, analyze, interpret, select, apply, reflect, assess or evaluate, guide, and coordinate (“I have understood both of these communication models, and I am in a position to analyze a certain situation using the models” (Portfolio 2)).

Competence development statements and competence deficits. This category included statements about competency development that had already occurred or was planned, by placing two competency levels in temporal juxtaposition: “I already knew the term action-oriented instruction, but now, I can put it in context correctly, and I understand the basic concepts of instruction” (Portfolio 2). But deficits students recognized in their competency were also brought out in order to mark steps taken in their development, as well as their needs. As a rule, this seemed to be very clearly articulated and helped the students recognize what they wanted to emphasize in their further study planning or in seminar tasks.

At this point, I have to admit that it is hard for me to give any negative feedback. It is now clear to me that, as a teacher, I can only act confidently if I can deal with rejection and lack of recognition from an individual or a pupil. That is what I want to work on in future feedback sessions. (Portfolio 2)

Statements about competence development through the portfolio exam itself as a recursive competency developing task were not found in the portfolios, although students made comments in their interviews that attest to this function (IS 4, 5, 12).

Competence development process statements. An important stage in competence development was seen in the students’ ability to place their own development in relation to processes and interventions.
In the final session, the Mind Maps constructed at the beginning of the semester were to be reconsidered and expanded (cf. Artifact Mind Map with suffix “Ende”). The difference between them shows that particularly in the theoretical areas (i.e., didactic models, competencies, etc.), new knowledge was gained. (Portfolio 13)

At that stage, the focus was also on becoming conscious of the coherence or divergence of existing external and internal expectations and to recognize their impact. “I know today that school is more than teaching pupils. There is a lot to do, but I will manage” (IS 3).

Conclusions

From the analysis of the portfolio texts and the interview with the learners and lecturers, it can be concluded that, firstly, in Module 2 of the education program, competence development did take place, something that is widely demanded but by no means always a sure thing (Arnold, 2012). Secondly, it was possible to make this result visible in the framework of the present exam format. Although the reflective texts in the portfolios were self-evaluations, they did not remain mere claims, since the reported competency positions and developments were verified by the artifacts, or at least made more plausible by them. The portfolio thus did indeed make an assessment of competence development possible. Furthermore, the furthering of the students’ diagnostic competency through the portfolio exam could be inferred from the quality and number of the competence development statements. This development was not brought up as a topic in the self-evaluations, but was raised in the interviews by both the lecturers and the students.

Overall, however, the impact of the competence development assessment using the portfolio form should be evaluated critically with regard to the mode of organizational integration. The implementation of such a concept presupposes the readiness of the lecturers, but also the initiation of a personnel development program by the universities leading to competent didactic performance (Schiefner-Rohs, 2011). In this context, the lecturers appeared to be a hindrance to innovation (ID 1). Also, for the creation of innovative examination formats, it must be asked whether, in addition to the (sometimes questionable) criteria of objectivity, validity, and reliability, the lecturers were able to contribute enough in their courses to the development of reflective competencies, or whether these were determined mostly by the predisposition or previous experience of the learners. For situations that fall within the assessment center procedure and use the social-psychological construct of self-monitoring, Emrich (2004) made the point that individuals’ ability to act out success theory varies, and that they either behave flexibly (“I deliver what is demanded for me”) or with particular strength of character (“I behave according to my own values”). With the portfolio in mind as a component of the competence development assessment, the critical conclusion must be drawn that its benefit varied with individual students.

References


Capacity Building in Energy Sector: The Role of Physical Sciences

Nnabugwu Chinyere Peace, Oluwole Adegbenro, Babatunde Oluwabori Ayodeji, Azizat Olusola Gbadegesin
National Centre for Energy Efficiency and Conservation, University of Lagos, Lagos, Nigeria; The Energy Commission of Nigeria, Abuja, Nigeria

Today, our nation finds itself in an energy/power crisis as a consequence of a complex interplay of factors, some of which will take years to unravel and straighten. The universally accepted knowledge that energy efficiency and conservation can be employed to ameliorate the situation is gradually being given a chance in the country, but capacity building in this sector has to be rigorously pursued to make the necessary impact. In this presentation, we outline a roadmap that will ensure that more young Nigerian graduates invest their mental acuities in academic pursuits in physical sciences so as to earn a livelihood in energy efficiency and conservation. The role of physical sciences is to prepare students for effective professional careers in many new career areas available in today’s technologically and globally interdependent society. Physical science integrates physics, mathematics, and chemistry as core components of its curriculum.

Keywords: physical sciences, energy sector, capacity building

Introduction

All economic principles depend on providing services and commodities, which as we know, depend on money, and the only commodity that is directly convertible to money is energy; therefore, energy saved is money earned. Energy is saved by practicing the principles of efficiency and conservation.

Energy efficiency has been in existence since 1947, when Japan implemented the first energy-saving policy (Goodman, 2013), which became much more sophisticated after the energy crises in the 1970s (Energy Conservation Center (ECC), Japan, 2012; Goodman, 2013), prompting energy efficiency and conservation becomes Japanese governments’ energy security goals (Goodman, 2013). Remarkably, from 1973-2007, Japan’s large industrial sector had little or no increase in energy consumption (Shiel, Nick, & Mark, 2011), as shown in Figure 1.

The 1973 oil embargo shocks made most of the world recoil from oil use to energy efficiency and...
conservation measures.

The United States first created state energy program in the 1970s, while India enacted India’s Energy Conservation Act in 2002 (Goodman, 2013), as well as other parts of the world.

We can place the beginning of our nation’s effort in this sector in December 2008, when the Energy Commission of Nigeria established the National Centre for Energy Efficiency and Conservation (NCEEC) at the University of Lagos to look into the challenges and prospects of energy efficiency and conservation (NCEEC, 2010).

Efficiency is well known to be defined as the ratio of work done or energy expended by an organism or machine to the energy supplied in the form of food or fuel. To achieve higher efficiency, we seek to increase the work done, while at the same time, reducing the fuel supplied.

The work done may be in form of services or goods or even energy in a form different from that of the input. For example, energy conversion from mechanical to electrical and vice versa. It has been suggested that energy efficiency is “the largest, least expensive, most benign, most quickly deployable, least visible, etc. way to provide more desired service per unit of delivered energy consumed” (Pipint, 2004).

The incentive for practicing energy efficiency is predicated on the following factors:

1. Increase of energy prices;
2. Shortage of new capacity building in the energy sector;
3. Energy insecurity;
4. Awareness of climate and environmental issues.

The last factor has greatly, quite recently, upped the ante in favor of more strenuous effort in practicing energy efficiency and conservation techniques.

Energy efficiency and conservation has both short- and long-term impacts on the availability (generation) of energy, especially in the face of dwindling resources, uncontrolled population growth, and the adverse effects of carbon-based energy sources. By saving energy, investment in energy production is reduced. The short-term impact is through mass participation when the populace is educated of the several ways and means of conserving energy. The long-term impact will come through the development of technology-assisted energy-saving appliances and insisting by appropriate regulations, by the use of energy efficient appliances and equipment, especially in the industries and the transportation systems.

Mass participation and self-employment in the energy efficiency sector are based on the knowledge, which can be obtained through primary, secondary, and tertiary education; but here, there are challenges of not...
teaching the curriculum in the right way. There is a need for an appropriately designed institutional framework and policy environment where university laboratories and private sectors are encouraged to build a network of information and personnel exchanges for Nigerian trained engineers to be productive (Oni, 1999; Oladapo, 2010).

There is no doubt that Nigeria has the resources for industrialization. However, poor managerial capacity and weak technological institutions constitute major constraints. Nigeria’s revision of educational policy has not been so effective in engineering departments in Nigerian universities producing undesired outputs (Dahlman, 1989; Oladapo, 2010). Hence, the need for more effective curricula and training of physical sciences for effective participation in developing national and global technology is required (Oladapo, 2010).

The Role of Physical Sciences

The role of physical sciences is to prepare students for effective professional careers, whether in the traditional academic pursuits as researchers or lecturers, or in many new career areas available in today’s technologically and globally interdependent society. As part of their graduation requirements, learners undertake projects, which often involve interdisciplinary and industrial applications. These projects offer further opportunities to gain in-depth knowledge and to develop skills in problem-solving, teamwork, and self-directed learning, together with an understanding of the role of physical sciences in the modern world to solve entrepreneurial challenges.

The entrepreneurial challenge of every graduate is to develop a decision-making process that allows for transformation. Graduates may also come up with practical working models from the confirmation of previous experiments or technical breakthroughs and localizing those that are suitable for our environment and the present day needs.

It is the purpose of this presentation to show that, with adequate learning and proper preparation, there will be greater understanding and appreciation, even among the populace at large. Learning is one of the fundamental processes that underlie our behavioral patterns. Virtually, behaviors in all organisms are learned. Learning is a vital aspect of employee development. It pervades everything we do and think.

According to Beach (1975), learning is defined as “human process”, by which skills, knowledge, habits, and attitudes are acquired and utilized. Hence, learning the fundamentals of energy efficiency and conservation will play a robust role in the energy sector and the nation at large by teaching individuals to adopt positive energy attitudes. It will further promote the urge by young graduates to tackle problems related to energy efficiency and conservation with the view of finding the most appropriate solution that is consonant with our national energy policies and needs.

Basic Physical Principles of Energy Efficiency and Conservation

Energy efficiency is the use of technology that requires less energy to perform the same function, while energy conservation is a behavioural approach that results in the use of less energy.

The basic physical principles of energy efficiency and conservation can be found in elementary physics. One ancient physicist, Archimedes, was known to have said, “Give me a lever long enough and a place to stand, and I shall move the world”. A good knowledge of the basics of mechanical energy will help to understand the principles of energy efficiency. Other principles of science, such as Lenz’s law in electromagnetism and Bernoulli’s equation of fluid flow are also examples applicable in energy efficiency.
Magnetism is a form of energy which can push or pull some tiny particles that make up matter (electrons), and thus, generates electricity.

Frictional force is as important as gravitational force, which allows work to be done. A paper published in 1919 by an American physicist, Robert (1919), suggested that rockets could be used to attain altitudes higher than the atmosphere; only the study of forces could have prompted that suggestion. Newton’s three laws help us understand the phenomena of frictional force, from which Galileo developed his principles of mechanics. This knowledge helps car manufacturers in the design of tires and shoe designers on the best design that will enable people to walk properly without slipping, because frictional force inhibits relative motion among objects in contact with each other.

Basic understanding of frictional force and energy conservation can spur ideas of energy efficient marketable inventions that can sell in sports, building, and manufacturing.

**Benefits of Energy Efficiency and Conservation**

The benefits of energy efficiency and conservation are illustrated in Figure 2.

![Flowchart of benefits of energy efficiency and conservation.](image)

- **Energy Access**
- **Energy Saving**
- **Cost Saving**
- **Environmental Sustainability**

**Measurements of Efficiency**

It goes without saying that to improve upon the efficiency of any machine, efficiency itself needs to be quantified or measured.

In any machine, efficiency is defined as: $$\left(1 - \frac{\text{losses}}{\text{input}}\right) \times 100\%.$$ This quantity is dimensionless and always less than unity. The goal is to make it almost 1 or 100%. Thus, to increase efficiency, the total losses must be as small as we can, possibly make it for a given input of energy. For example, photovoltaic cells still remain the preferred solution to alternative energy supply, but they suffer from poor efficiency. The best experimental solar cell technologies have efficiency of about 35% and are made from very expensive semiconductor laminates. However, solar applications are ultimately a function of efficiency, cost, and environmental safety. Current research in solar technology has revealed the possibility of producing commercially viable solar applications to meet the trio requirement of efficiency, cost, and environmental...
safety. Sanyo has reported a marketable solar cell efficiency of 20%-21% and a module efficiency of 18%-19% (see Appendix A).

Thus, improving on the efficiency of photovoltaic cells as a measurement of efficiency will create more job opportunities within the solar industries.

For the purpose of training and development of the nation’s youths, which is one of NCEEC’s mandate, a workshop was organized by the centre in conjunction with a non-governmental organization (NGO), known as Action Health Incorporated (AHI), to educate youths on energy use, titled “Youths and Energy Use: Securing Our Health and Environment”, for a selected number of secondary school students in Lagos State, Nigeria. The research team of the NCEEC made presentations on energy efficiency and conservation, which prompted students to come up with energy efficient solutions. The event showcased several options of energy wastage solutions from the students, where a winner and runner-ups were selected (see Appendix B, a participant educating the audience on the benefits of compact fluorescent lamps over incandescent lamps, stressing that people should imbibe the consciousness of energy conservation so as to save energy and provide for others who also need it).

This proves that with the right curriculum and proper teaching, learners would be motivated to find suitable solutions to the nation’s quest for energy efficiency and conservation, and in turn, create more job opportunities.

Physical sciences form the basis of energy conservation, energy efficiency, and renewable energy. These all come with remarkable prospects for employment generation, as well as entrepreneurship.

**Job Opportunities in the Energy Sector**

Figure 3 shows different job opportunities in the energy sector.

![Figure 3. Block diagram showing job opportunities in the energy sector.](image)

**Conclusions**

A curriculum sets out to achieve certain stated objectives which learners are expected to demonstrate capabilities in it. Quite often, these objectives are in terms of knowledge assimilation solely for its own sake. A
learner may have very good knowledge and understanding of a subject but still is unable to develop a working or a practical model, because the implications of the known facts are either not the focus of the subject or poorly understood. For example, any engineering graduate could be expected to understand what efficiency is. It is perhaps the most mentioned term in engineering; but does he/she understand all its implication in real life?

This issue is clearly important in our very own environment, where we actually do little of either designing or manufacturing of appliances and equipment which consume energy. So, there is very little chance of a young graduate striving at improving or building energy efficient products per se. But if he/she understands the implications of energy efficiency, then, as a true engineer/scientist, he/she will strive, at least, to select the most energy efficient one and operate it in an efficient manner, or better still develop an improved one.

We have shown in this presentation that with the right emphasis placed on certain aspects in the study of physical sciences, learners would be motivated to find adequate solutions to the challenges of living in an energy-hungry nation.

**Recommendations**

This presentation shows that adequate study of physical sciences will help learners become indispensable within the energy sector. Therefore, it is recommended that Nigerian educational curriculum be tailored to introduce to learners the rudiments of research and development right from the secondary level, as well as being project-oriented, requiring learners to build a marketable energy efficient product expected to make life easier within their communities or be improved upon before graduating from the learning environment.

It is also recommended that energy education should be introduced to learners from the primary level in order to grow an energy-conscious generation.

**References**


Appendix A. Activate Solar; Sanyo Data Sheet

HIT® photovoltaic module

SANYO

HIT-N240SE10
HIT-N235SE10
HIT-N230SE10

R&D technology adaptation

- Improvement of the cell efficiency to reduce
  - Carrier recombination loss
  - Optical absorption loss
  - Resistance loss

Three tabs application

- Reducing electrical loss between the cell fingers and tabs
- Making the tab-width thinner to expand the light receiving surface

New tab design

- Light capturing technology
  - Reducing reflection and scattering of incoming light
  - Improving generated electricity levels in morning and evening times

Anti-reflection glass

* For HIT-N220SE10

19.0% 190 W/m²

HIT cell technology

The SANYO HIT (Heterojunction with Intrinsic Thin layer) solar cell is made of a thin mono crystalline silicon wafer surrounded by ultra-thin amorphous silicon layers. This product provides the industry’s leading performance and value using state-of-the-art manufacturing techniques.

Environmentally-Friendly Solar Cell

More Clean Energy

HIT can generate more clean Energy than other conventional crystalline solar cells.

Special Features

SANYO HIT solar modules are 100% emission free, have no moving parts and produce no noise. The dimensions of the HIT modules allow space-saving installation and achievement of maximum output power possible on given roof area.

High performance at high temperatures

Even at high temperatures, the HIT solar cell can maintain higher efficiency than a conventional crystalline silicon solar cell.

HIT Photovoltaic Module

HIT is a registered trademark of SANYO Electric Co., Ltd. The name “HIT” comes from “Heterojunction with Intrinsic Thin layer” which is an original technology of SANYO Electric Co., Ltd.

www.sanyo-solar.eu SANYO Component Europe GmbH

The HIT cell and module have very high conversion efficiency in mass production.

<table>
<thead>
<tr>
<th>Model</th>
<th>Cell Efficiency</th>
<th>Module Efficiency</th>
<th>Output / m²</th>
</tr>
</thead>
<tbody>
<tr>
<td>HIT-N240SE10</td>
<td>21.6%</td>
<td>19.0%</td>
<td>190 W/m²</td>
</tr>
<tr>
<td>HIT-N235SE10</td>
<td>21.1%</td>
<td>18.6%</td>
<td>186 W/m²</td>
</tr>
<tr>
<td>HIT-N230SE10</td>
<td>20.7%</td>
<td>18.2%</td>
<td>182 W/m²</td>
</tr>
</tbody>
</table>
**Electrical and Mechanical Characteristics**

**HIT-N240SE10, HIT-N235SE10, HIT-N230SE10**

### Electrical data (at STC)

<table>
<thead>
<tr>
<th></th>
<th>Module HIT-N240SE10</th>
<th>Module HIT-N235SE10</th>
<th>Module HIT-N230SE10</th>
</tr>
</thead>
<tbody>
<tr>
<td>Power (kWp)</td>
<td>240</td>
<td>235</td>
<td>230</td>
</tr>
<tr>
<td>Voltage (Vmp)</td>
<td>43.7</td>
<td>43.0</td>
<td>42.3</td>
</tr>
<tr>
<td>Current (Imp)</td>
<td>5.51</td>
<td>5.48</td>
<td>5.45</td>
</tr>
<tr>
<td>Open circuit voltage (Voc)</td>
<td>52.4</td>
<td>51.8</td>
<td>51.2</td>
</tr>
<tr>
<td>Short circuit current (Isc)</td>
<td>5.85</td>
<td>5.84</td>
<td>5.83</td>
</tr>
<tr>
<td>Maximum power rating (Wp)</td>
<td>240</td>
<td>235</td>
<td>230</td>
</tr>
<tr>
<td>Maximum system voltage (V)</td>
<td>1000</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

#### Temperature characteristics

<table>
<thead>
<tr>
<th>Temperature (NOC) (°C)</th>
<th>240</th>
<th>235</th>
<th>230</th>
</tr>
</thead>
<tbody>
<tr>
<td>Temperature coefficient of Voc (mV/°C)</td>
<td>-0.131</td>
<td>-0.130</td>
<td>-0.128</td>
</tr>
<tr>
<td>Temperature coefficient of Isc (mA/°C)</td>
<td>1.76</td>
<td>1.75</td>
<td>1.74</td>
</tr>
</tbody>
</table>

#### At NOCT

| Maximum power (Wp) | 182 | 179 | 175 |
| Voltage (Vmp) | 41.1 | 40.5 | 39.9 |
| Current (Imp) | 4.44 | 4.41 | 4.38 |
| Open circuit voltage (Voc) | 49.6 | 48.9 | 48.3 |
| Short circuit current (Isc) | 4.71 | 4.70 | 4.70 |

#### At low irradiance

<table>
<thead>
<tr>
<th>Irradiance (W/m²)</th>
<th>225</th>
<th>225</th>
<th>225</th>
</tr>
</thead>
<tbody>
<tr>
<td>Voltage (Vmp)</td>
<td>45.9</td>
<td>44.7</td>
<td>43.8</td>
</tr>
<tr>
<td>Current (Imp)</td>
<td>41.7</td>
<td>41.0</td>
<td>40.6</td>
</tr>
<tr>
<td>Open circuit voltage (Voc)</td>
<td>49.0</td>
<td>48.4</td>
<td>47.8</td>
</tr>
<tr>
<td>Short circuit current (Isc)</td>
<td>1.17</td>
<td>1.17</td>
<td>1.17</td>
</tr>
</tbody>
</table>

---

**Materials**

- Cell material: 5 inch HIT cells
- Glass material: All coated tempered glass
- Frame material: Black anodized aluminium
- Connectors type: MC3

**Certificates**

- IEC 61730
- IEC 61215

---

**Guarantee**

- Power output: 10 years (90% of Pmin) 25 years (80% of Pmin)
- Product workmanship: 5 years
- (Based on guarantee document)

---

**SANYO Component Europe GmbH**
Solar Division
Stingijoerring 4
81309 Munich, Germany
Tel: +49-89-46069-0
Fax: +49-89-46069-110
http://www.sanyo-solar.eu
email info@sanyo-solar.eu

---

**SANYO Electric Co., Ltd.**
Solar Division
http://www.sanyo-solar.eu
Participant educating the audience on the benefits of compact fluorescent lamps over incandescent lamps at the NCEEC Energy Awareness Workshop.
An Examination of the Heuristic Role of Theory in Undergraduate Political Research

Moses Metumara Duruji
Covenant University, Ota, Nigeria

The significance of the positivists’ orientation is a marked change in the process and method of political inquiry. One aspect that has become intrinsically important is the theoretical framework. It is through the theoretical framework that problems under investigation are linked to the provisions or principles of a relevant theory. The theoretical framework provides researchers or investigators with the relevant conceptual tools to layout templates for conducting research. By its nature and scope, researches in political science are necessarily theory-driven. However, students of political science undertaking research projects have consistently found this aspect difficult, not only in the choice of appropriate theory, but also in properly locating the study within the context of the theory(ies) chosen. The insistence of supervisors that their supervisees choose appropriate and sufficient theories has most times delayed students’ graduation, to the extent that supervisors, in order not to constitute themselves as obstacles to the progress of students, allow a project that is not well located in theory to pass. The paper examines the challenges students encounter with the role of theory and theoretical framework in their research projects, with data collected by the researcher from interaction with student researchers over the past eight years of supervising projects and interaction with colleagues who supervise undergraduate projects. The paper concludes that a dogmatic insistence on a given theory or paradigmatic procedure is defeating the essence of research which is basically to advance knowledge to improve the human condition. A review therefore is necessary so as to achieve the objectives of academic researches.

Keywords: undergraduate research, role of theory, political science research, Nigerian educational system

Introduction

One significant impact of the positivist movement in the social sciences is its insistence that behavioural sciences, including political science, should adopt the scientific method of research. Embodied in this approach is the drive for theoretical explanation of phenomenon. Theory itself consists of constructs or concepts, definitions, and propositions that put together to present a systematic view of a phenomenon (Asika, 1991, p. 9). The theoretical framework section of a research was therefore prescribed to accommodate an appropriate theory that ordinarily should form the basis for the research or the study being undertaken. As such, one can say that the theoretical and conceptual frameworks of a research provide the researcher with relevant conceptual tools with which to layout templates for conducting research. By its nature and scope, researches in political science and other social sciences ought to be theory-driven or theory-guided.

Moses Metumara Duruji, Ph.D., Department of Political Science and International Relations, School of Social Science, College of Development Studies, Covenant University.
This understanding of the role of theory in a research seems not to have been fully comprehended by student researchers carrying out undergraduate projects. Many final year students in Nigerian universities encounter problems with this aspect of their undergraduate studies. The insistence of some project supervisors whose candidates use the appropriate theory for their projects has often led to situations where such students get stuck and consequently have their graduation delayed. At times, pressure from the students and colleagues would force the supervisor to allow the student(s) concerned to move on to the next stage, when the right thing has not been done so as to allow such students to meet up with graduation requirements. The resultant effect of this shallow foundation for university graduates, often begin to show when such students move on to postgraduate level.

The paper examined these issues by relying on data collected by the researcher through participant observation, having interacted with student researchers for over eight years of supervising projects. Other methods used in gathering data for this paper included interviews with colleagues who have been supervising undergraduate projects for the last four years and panel discussion with students currently undertaking their undergraduate projects. We employed descriptive narrative in the presentation and analysis of the data gathered for the paper.

Role of Theory in Research

Theories are constructed in order to explain, predict, and master phenomena, for example, relationships, events, or behaviours. In political science, two broad strands of theories have been identified—empirical and normative theories (Varma, 1975; Buchanan, 1980). Empirical theories deal with facts, quantities, and relationships (Buchanan, 1980). These theories are amenable to empirical measurement and verification and subject to hypothetical testing (Asika, 1991). The second strand, normative theories, is theories that incorporate value judgment: “goods and bads” and “shoulds and should nots”. Although not amenable to hypothetical testing, normative theories are referred to as norms regarding right, good, and beautiful, which differ from person to person and culture to culture (Asika, 1991).

The positivist orientation in social sciences, however, lays emphasis on empirical theories which perform unique functions in political research. Theory in this regard is the hub of scientific work.

Goode and Hart (1952) identified the functions performed by theory to include: definition of the major orientation of sciences, like the kind of data to be abstracted; offering of conceptual scheme by which the relevant phenomena are systematized, classified, and interrelated; summarizing facts into empirical generalizations; predicting facts; and pointing to gaps in knowledge. On the other hand, Sellitz, Wrightsman, and Cook (1976) observed that theory summarizes existing knowledge; provides an explanation for observed events and relationships helps to predict the occurrence of unobserved events and relationship on the basis of explanatory principles embodied in the theory; increases the fruitfulness of research by providing significant leads for inquiry and by directing research and contributes directly to the development and organization of knowledge. A theory makes generalizations about observations and consists of a set of interrelated and coherent models which applies to all studies of science disciplines, including political studies. In a methodological view of political theory, Rodee, Anderson, and Christol (1983) argued that it is a branch of political science which attempts to arrive at generalizations and draws inferences from the data gathered by various specialists relating to political phenomena. In other words, political theory reflects sustained attempt to arrive at generalizations in political science (Biereenu-Nnabugwu, 2006). This way, theory explains, organizes, systematizes, and
coordinates existing knowledge in a particular area (Isaak, 1969). It also plays an important heuristic role in the
generalization of hypotheses. Theory guides practice and research; practice enables testing of theory and
generates questions for research; and research contributes to theory-building and selecting practice guidelines.
This therefore implies that practice, theory, and research interweaves to create the knowledge fabric of a
discipline (Liehr & Smith, 1999; Mamdani, 2011).

Functions of Theoretical Framework

The theoretical framework of a study reflects the foregrounding of the theory which organizes the research.
It presents the theory which explains why the problem under study exists. Framework connotes the main
supporting parts of a building or engineering design or sets of facts or ideas from which more complicated ideas
are developed. As such, a theoretical framework stands as a devise or scheme for adopting or applying the
assumptions, postulations, and principles of theory (Biereenu-Nnabugwu, 2006). It is a way of describing,
analyzing, interpreting, and predicting a phenomenon (Obasi, 1999).

Theoretical framework flows logically from what has been done previously in the problem area and it
discusses the relationship among the variables that are deemed to be integral to the dynamics of the situation
under investigation (Biereenu-Nnabugwu, 2006). Going by this, theoretical framework spells out the structure
of reference on which the study relies. This means that developing a theoretical framework would help the
researcher formulate his/her postulations and test certain relationships of variables so as to improve the
understanding of a particular situation and contribute to the body of knowledge (Dionco-Adetayo, 2003). This
is obvious because that the application of a specific theory on a particular subject is required to provide main
conceptual support in the explanation and analysis of what would have been a complicated study. The main
objective is to integrate the findings into overall pattern. In other words, theoretical framework provides the
researcher what he/she should look for in his/her investigation and provides him/her with an abstract scheme
within which he/she can adjust his/her findings and integrate them into a meaningful explanation of the
phenomena (Varma, 1975).

Through theoretical framework, the adopted theory’s provisions and principles are linked to the problem
under investigation. Theoretical framework, therefore, performs the function of providing the researcher with
relevant conceptual tool with which to conduct the research.

The positivist impact on political science implies that theoretical framework is a relevant and integral part
of a political research. Inquiry in political science also involves explanations and analyses that are guided by a
specific theory sufficient and adequate for the phenomenon under investigation. Theoretical framework is
relevant therefore in political studies as that specific presentation or frame of analysis that must be in line with
the adopted theory.

Theoretical framework is therefore formulated by resorting to the following steps: Specifying the theory
used as basis for the study; mentioning the proponents of the theory; citing the main points emphasized in the
theory; supporting the exposition of the theory by ideas from other experts if necessary; illustrating the
theoretical framework by means of a diagram; and reiterating the theoretical proposition in the study.

After formulating the theoretical framework, the researcher has to develop the conceptual framework of
the study. A concept is an image or symbolic representation of an abstract idea. Chinn and Kramer (1999)
defined “concept” as a “complex mental formulation of experience”. While the theoretical framework is the
theory on which the study is based; the conceptual framework is the operationalization of the theory. It is the
researcher’s own position on the problem and it gives direction to the study. It may be an adaptation of a model used in a previous study, with modifications to suit the inquiry.

Aside from showing the direction of the study, through the conceptual framework, the researcher can show the relationships of the different constructs that he/she wants to investigate. The following steps are the procedures in the formulation of conceptual framework:

1. Citing the conceptual framework or paradigm;
2. Identifying the variables;
3. Pointing out the dependent and intervening variables;
4. Showing the direction of the study.

Once the conceptual framework has been determined, the next is for the researcher to determine what research methods to employ the best answer to the research problem through the proposed framework.

**Methodology**

Data for this paper were derived from the author’s interaction with undergraduates who are undertaking their projects as a requirement for graduation at the Department of Political Science and International Relations, Covenant University, Ota, Nigeria, involving students of the department that offer the major programmes run by the department, such as political science, international relations, policy and strategic studies, and public administration. Within this period spanning eight years, the author has supervised 66 undergraduate students and currently is supervising another set of about nine students. Observations derived from working with these student researchers come in handy in the analysis of the phenomenon under discussion. Beside supervision of students directly, the author has also participated within this period in the evaluation of projects not directly under his supervision as a member of the panel instituted annually by the department for the project defence, and his experience from these exercises become useful in generating the data utilized in the analysis. Issues that come up during the departmental board meetings where the results of the projects are considered of which the author has actively participated within the period earlier stated also come forth as useful to our objective.

Besides observation, other methods used for gathering data include a focus group discussion of final year students currently undertaking their undergraduate project research in Covenant University. Two groups of eight students across the programmes offered by the department and students from other departments in the College of Development Studies were extensively interviewed. Data were also derived from the author’s interaction with colleagues on one-on-one basis centering on their own experience with students’ supervision and evaluation through project defence. Descriptive analysis was the analytical technique applied in the analysis of all the data generated from these multiple methods of data gathering.

**Results**

One aspect that undergraduates find most difficult in their programme is the requirement for a project. Freshers coming into the university are most of the time oblivious of the content of the courses they have chosen to study and without any experience and good foundation given to the students, such students soon find out that they cannot move forward in the research process because of the fact that they do not know what to do. One area in the research process where students always get stuck is the segment for theoretical framework. The author’s experience as a project supervisor for over eight years indicates that most of them do not know how to go about this aspect of the research, that is choice of a theory or theories and how to apply it or them to their
research. One student in the set of 2006/2007 academic session almost got frustrated because of the author’s insistence that the right thing needs to be done. The student towards the tail end of the Omega or second semester of their final year of study, had to change the topic because the theories the student brought were not adequate to explain the subject under investigation. That action threatened the particular student’s graduation because the time between the change of topic and review of what has already been done to fit into the new topic was simply not there. That student eventually graduated without properly conducting the research within the frame of the theory adopted for the study. Besides the choice of a theory and explanation of what the theory stands for, most students find it difficult to relate theories to their studies and even when such is done to some levels of satisfaction, ends there without reference to other segments of the research project. This experience is not limited to the students under the author’s supervision, as observations from the students allotted to the panel where he sat during project defence over the years also shows that most of the students supervised by other colleagues in the department are not better. Majority of them were unable to clearly link their topics to the theory specified or adopted and going through some of those submissions which confirms the position that most of them lack understanding of the role of theory in a research and what function theoretical framework plays therein. Most colleagues the author interacted with on this subject also confirm that they had such challenges with students allotted to them for supervision in the past. These students always encounter problems in their research projects, particularly with situating role of a theory in a research.

The problem of linking theory to research and appropriately placing the conduct of the research on the theory adopted does not seem to be limited to political research, as the author’s interaction with colleagues from other departments has also indicated a similar challenge of student researchers with theory. For instance, a colleague from the Department of Sociology narrated a story about a particular student who was unable to find an appropriate theory for the study and in fact had to go ahead without satisfactorily dispensing the theoretical segment section. He confessed that the student was still searching for theory after concluding the project and writing conclusions and recommendations. The implication here is that the theory that was eventually accepted played no role in guiding the research but was squeezed in there to “fulfil all righteousness”. This certainly is not limited to this sociology student, as most of the students carried out undergraduate projects skipping the theory, and later, come back to it after completing the field work and analysis of data. This of course shows that the role theory or theoretical framework should play in such a research was not tenable, as it is obvious that such a research was not guided by any theory. The practice of affixing a theory later to fulfil all righteousness only amount to deceit. The Nigerian educational system has not helped matters as the emphasis on certification without much on the substance encourages a culture where such students who are not well-grounded are pushed out of the system. Sometimes, this happens at the departmental board and college board meetings, where decisions are taken to allow these students to graduate without doing the right thing. Some colleagues who supervise undergraduate projects revealed to the author during their interaction over this subject that other colleagues put pressure on them to allow students to progress to the next stage when they insist that the segment should be satisfactory which causes frustrations to set in for those students and the desperation to meet deadline and timelines of graduation.

But the question that arises from here is what is responsible for the poor and dismal showing of student researchers? Is it from the quality of students or the lecturers that teach them or could the problem be located in the curricula or materials which made available for the teaching of these courses? Our attention should now focus towards examining these issues.
Curricula

The thinking in the department is that the poor performance of student researchers undertaking their final year projects has something to do with the curricula that prepare them in the course of their programmes to undertake an independent research. Before a review of the curriculum was carried out by the department, students offering the four programmes on the stable of the department have to join other students from the numerate disciplines, such as accounting, business, administration, and economics to take a college wide course at both semesters, extending up to their 200 level. Apart from the fact that the content of these courses lays more emphasis on statistics and mathematics, the largeness of the class in terms of students-lecturer ratio offering these courses, makes it difficult for the students to understand. This view was corroborated unanimously by the students of Department of Political Science and International Relations that the author interacted with on the issue. However, the views were mixed from the other panel comprising students from outside the department. However, students from the numerate disciplines, such as accounting and economics, whom the author also interacted with on the issue share the views expressed by their colleagues from the Department of Political Science and International Relations. In fact, they find the content of those courses adequate, but students of other social science disciplines, such as sociology and mass communication, who do not offer the course believe that the course is irrelevant.

However, the thinking in the department seems to be in consonance with that of the students that why a curriculum review committee was constituted by the departmental board to review the curricula of courses that prepare students of the department for a project research in their final year. The report of this committee which was submitted to the department suggested the introduction of courses from the first year of students’ programme that would help to inculcate skills that would enable each student conduct an independent research at the final year. Courses, such as basic statistics for social sciences, were recommended to be taught in both semesters of the first year. As the students move on to the second year, it was also recommended that the course called Logic and Methods in Political Inquiry that used to be taught in the Omega semester should be taught in both semesters in a more meticulous and thorough way. Introduction to Political Analysis which emphasises theories was to be taken in the Alpha semester. At Alpha semester of the third year, the course called Research Methodology would still be taught, while in the second semester, Contemporary Political Analysis that builds on the foundation of Introduction to Political Analysis in the second year would be thought to all the students in the department. Before that decision, only students offering political science programme were taking the course while those offering international relations and policy and strategic studies were exempted.

Though these changes were welcomed by students in the department going by the views of those who interacted with the author expressed, the impact is yet to be reflected in the quality of project they submit at the end of their programmes.

Quality of Teaching and Students

There are contrasting views on the subject of the quality of teaching and quality of students admitted to read various programmes in the department. Whereas majority opinions of students see the quality of teaching as narrow and not in-depth, some lecturers see the problem as emanating from the students, most of whom do not seem to be serious with academic programmes (Field work, 2011b). One of the teachers traced it to the kind of students that are admitted into the Nigerian universities these days, especially at private universities, where
majority of the students in the first year are within the average age of 16-17. Some of them are admitted into the universities at the age of 14. To him, these people are not yet matured for rigorous academic exercise, so they find it difficult to acquire the skills and objectives of the courses (Field work, 2011b). This inadequacy comes to the fore when such students could not comprehend how to go about with their final year research projects. Students, who expressed their opinions on this issue, disagreed with the views stated above (Field work, 2011a). They faulted the teaching method adopted by some of the lecturers handling the above mentioned courses; again, these courses by their nature are too abstract and require special skills from the lecturers appointed to teach those courses to make them more interesting. The fact is that, most lecturers, using their teaching approaches, worsen the situation by making the courses uninteresting for the students. Some lecturers as products of the Nigerian system are not very well-grounded in methodology as a result of their upbringing and background. Such lecturers certainly would have very little to offer to the students. So it is not surprising that students get frustrated when carrying out research. Even some colleagues who supervise undergraduates are still undergoing their M.Phil.-Ph.D. programmes. These categories of lecturers are not going to give quality supervision because of their own deficiencies in this subject matter (Mamdani, 1993). But unfortunately, most Nigerian universities, especially privately owned ones, are proportionally dominated by individuals at this cadre. Consequently, the bulk of the teachings of the courses preparing students to carry out independent research and supervision of students researchers fall on them. The output is the experience that we see with undergraduate research students not knowing what to do with their projects.

Teaching Materials

The unavailability of teaching materials for the courses that prepare students to carry out independent research in their final year is another factor that students agree unanimously as responsible for their dismal performance in carrying out quality researches. Most of the students that have passed through our system often times display ignorance of what is expected of them in their researches and would justify their ignorance of lacking of texts or unavailability of such texts that are written in simple English. The students unanimously agree that such materials are in very short supply. Even the school library is not well stocked with materials that deal with methodology. The claims of the students on unavailability of textbooks relevant to political science particularly was debunked by most colleagues who expressed their opinions on the subject matter. However, a particular colleague who is teaching one of the methodology courses claimed that the position of the students are largely right because there are very few available materials that specifically address programmes in political science and international relations. The ones that are readily available on the shelves can hardly be accessed by the students. In other words, the students passing those methodology courses are forced to rely on the notes the said lecturers has given to them in class, and in most cases, these notes just scratch the issue that those who eventually understand always go the extra mile of reading textbooks to compliment whatever the lecturer is offering in class.

The quality of the available textbooks is another area where lecturers and students agree in the sense that most of them skip or fail to adequately treat the topic of theory, its functions, roles, as well as the format a theoretical framework should adopt in a research design. Few textbooks that discuss theory do it in a shallow form without any detailed explanation that could benefit the students that are ready to learn. This has been the case, there is no way such a student would not be shallow in their approach to research projects.
Conclusions

The challenges with student researchers cannot be overstated. This problem arises because of the poor foundation of the students that makes them deficient in methodology and theory. This has often reflected in the quality of research output from these students. One area this has become too obvious is the segment in undergraduate projects that requires them to adopt a theory and use such theory as a guide to conduct their research. Most of the students who have completed their studies and even those currently undertaking the programme have often confessed that they do not understand the heuristic role of theory in a research. The result from these is the challenges such student researchers face with their projects. Most of the time, they get stuck for lacking of knowledge of how to go about the research leading to compromises on the part of the supervisor or even the authorities to see to it that such student meets the timeline for graduation.

So many factors have been identified in the paper as responsible for this state of affairs, including the nature of curricula that were designed to build these students over the years and inculcate in them the skills required to carry out an independent research. This has been identified as inadequate, prompting the Department of Political Science and International Relations of Covenant University to review their programmes and curricula to ensure that the form and content of various courses designed to impact skill into students for meeting the research objectives.

Another important factor identified as responsible is the low quality of methodology teachers and undergraduate project supervisors in Nigerian universities. This is because that most departments of Nigerian universities, particularly privately owned ones, have a staff mix that tilts heavily to junior academics who are still struggling for their M.Phil.-Ph.D. programmes. With this, it becomes unsurprising that such problem would exist. This imposes a duty on the authorities running the universities and those governing them to expedite action in driving quality teaching staff by instituting training programmes for junior academics and even those who have completed their doctoral degrees but are still deficient in methodology, yet are given those courses to teach, for lacking of qualified faculty. That notwithstanding attention must not lose track of the students. Another area that requires a second look is processes of recruiting students into Nigerian universities. Effort should be made to ensure the right candidates who are not only qualified academically but also psychologically prepared to engage in the rigorous process of studentship. Furthermore, attention must also be focused on producing quality teaching text cast in simple language that would not only be accessed in libraries but also available for the students to buy their own copies.

References


Field work. (2011a, August 24). FGD conducted by Duruji Moses with selected final year students of the Department of Political Science, Covenant University held at International Relations Laboratory, Covenant University, Ota, Nigeria.

Field work. (2011b, September 10). Roundtable conducted by Duruji Moses with selected lecturers of Covenant University on the subject of role of theory in undergraduate research held at International Relation Laboratory, Covenant University, Ota, Nigeria.


Explore the Factors Influence Students’ Knowledge
Representations by Using Socio-scientific Issues Through
Inquiry Process

An-Chi Yeh, Chia-Ju Liu
National Kaohsiung Normal University, Kaohsiung, Taiwan

The main purpose of this study is to explore the factors that influence the inquiry process that the students linked chemistry with biology to construct knowledge representations in a socio-scientific issue (SSI)—the contaminated milk event. There are six volunteers who are the 6th grade students that participated in this study with the guide of teaching instruction of reading and experiment for joining science fair. Classroom observation, video record, and written reports were collected as data to investigate the change of students’ knowledge representations during the process of inquiry, and then, intensive interviews are conducted to further confirm this change. By analyzing these data of students’ knowledge representations expansion in this study, it shows that the students’ misconceptions on the issue have been clarified through inquiry. The results of this study revealed that the key points of motivation and collaboration influence the change of students’ knowledge representations through the inquiry of SSI.

Keywords: inquiry, knowledge representations, socio-scientific issue (SSI)

Introduction

Students may complain that “Science is lack of relevance in the real world” (Kimbrough & Jensen, 2010). Therefore, how to find the relevance of science and daily life is important of science education to increase students’ interest and willingness (Rannikmae, Teppo, & Holbrook, 2010) and free the experimental spirit and knowledge from textbooks to social setting.

Many scholars agreed that socio-scientific issues (SSIs) including real-world situations can be a medium for students to learn (Ratcliffe, 1997). Therefore, using popular SSIs as a medium to enhance science classroom has the benefits that allowing students to connect science in their daily life. Previous studies also showed that “the practices of SSIs” are represented as scientific literacy in recent years (Levinson, 2006; Lewis & Leach, 2006). Due to the problematic nature of SSI and students’ lack of opportunity for authentic investigation, it is important for teachers to arouse students’ curiosity to inquiry SSIs. Engaging students in this method of inquiry actively using SSIs will be valuable for school science and beneficial for students in their learning (Rannikmae et al., 2010).
However, there is no corresponding curriculum in the general elementary science class in Taiwan. Hence, this study conducted the inquiry for joining science fair. The competition of science fair supports the motivation in which students can cooperate, brainstorm in the process, read relevant papers, and design experiments as scientists. Students need the experienced teachers who can provide instruction in open-ended scientific inquiry activities (Furtak, 2006). Since SSIs are ill-defined and open-ended problems, it will suit for the purpose of the study. The open-ended inquiry activity has difficulty in applying to middle schools and elementary schools (Dunkhase, 2003; Pataray-Ching & Roberson, 2002).

The contaminated milk controversial event has its significance to be introduced to students (Kimbrough & Jensen, 2010; Coleman, 2010; Jacobsen & Slocum, 2010) and is critically needed in the context when press media misled the public without proper scientific information. This study conducted a case of this approach during 2008, while the contaminated milk controversial event was a significant issue, leading the students of elementary school to an adventure of inquiring.

Knowledge representation is based on the organization of words and symbols to represent knowledge, which contains two aspects: 1. Declarative knowledge means knowing “what”; and 2. Procedural knowledge means knowing “how”. Consequently, knowledge representation is a mental form of interaction between declarative knowledge and procedural knowledge of what each individual knows about things and events, etc. that exist outside their minds, and this knowledge representation will change due to the information received from the outside world to reflect their own perceptions on the things and events (in this study, the SSIs). We will be able to have a better understanding of the improvement of students’ learning by studying their knowledge representation.

However, even there were a lot of studies described some factors that will influence students’ development of knowledge representation, there is no study exploring the factors that influence the changes of students’ knowledge representations in SSI inquiry processing in a real learning and teaching field. Due to this reason, the purpose of this study is to use the SSI—the contaminated milk controversial event as a problem to solve for exploring the knowledge representations of students. The research question is “Which factors influence the changes of students’ knowledge representations in SSI inquiry processing?”.

Research Design

Participants
Six volunteers of the 6th grade students, six parents, two teachers, one professor, and one doctor are involved in the problem solving process of SSI. The students are the main participants in this research who wanted to comprehend. The professor and the doctor are the experts to help students understand the correct science concepts. The teachers are the key persons to inspire students’ ideas and actions in the process of inquiry. The following are the teachers’ teaching strategies in this study.

Reading. The aims of reading are: (a) to collect materials of SSIs from multiple sources, such as the news, reports, and magazines; (b) to identify what kind of information is helpful, what kind of article is boasting, what kind of information should be further proofed, and what kind of content can be supportive of future experiment; and (c) to explore the answer through Internet.

Experiment. The study participants were asked to: (a) interview with experts, such as professor and doctor; and (b) design and conduct experiments to clarify the question.
The methods and activities are mixed used alternately during the teaching process depending on the difference of circumstances.

SSIs

The contaminated milk controversial event happened in 2008 and influenced the other areas of Taiwan that the milk was found tainted with melamine. Many infants and pets were damaged with kidney stones (Langman, 2009). Through the intensive reports by media, the public linked melamine with “poisonous” and “kidney stones” in cognition since then. Later, chemistry journals reported that the contaminated milk that has caused this event was added industrial melamine that contains cyanuric acid (Osborne et al., 2009) rather than regular one. But, it seems not changing public’s impression with melamine.

Data Collection

To answer the research questions, we used a method to be able to capture and describe students’ knowledge representations of SSIs in their inquiry process. The gathered data are shown in Table 1.

Table 1
Classification of the Gathered Data

<table>
<thead>
<tr>
<th>Data</th>
<th>Gathering time</th>
<th>Gathering method</th>
<th>Note</th>
</tr>
</thead>
<tbody>
<tr>
<td>Observation data</td>
<td>Reading session: Each time has two hours for eight times, 640 minutes in total. Experiment session: 10 times, 3,400 minutes in total.</td>
<td>Reading session is held twice each week after the two teachers negotiating with the school. Experiment session is held on weekends.</td>
<td>The journal will be sent to a teacher for revision or supplement in the same day due to the reason that the report might be too objective from the observer.</td>
</tr>
<tr>
<td>Video record</td>
<td>All the other videos are recorded during reading session and experiment session.</td>
<td>A video recorder is used while the class is holding.</td>
<td>The class records support the researcher to reflect teaching.</td>
</tr>
<tr>
<td>Work sheets</td>
<td>The reports includes 18 texts from the discussion between researcher and the other teachers, 48 from students reading session, eight from the experiment session.</td>
<td>A discussion is held before and after the teaching between the researcher and the other teachers. The students are required to gather information and write down feedbacks in reading session. They are also required to record the design, process, and the result of the experiment in the experiment session.</td>
<td>The written reports help the researcher analyze the change in students’ knowledge representations.</td>
</tr>
<tr>
<td>Interview</td>
<td>There are interviews with the professor, the doctor, and the students. The students’ interviews are held individually after each reading and experiment. Another one is held with all the students all together after all the activities are finished for 20 minutes.</td>
<td>There are two interviews with the professor and the doctor. There are four interviews with the students.</td>
<td>The interview with the professional helps researchers document the inquiry process of the poison milk. The interview with students provides evidences of knowledge representations.</td>
</tr>
</tbody>
</table>

Data Analysis

This study is an interpretative research. After collecting these qualitative data (see Table 1), the researcher categorized these data into several parts and coding them as initial stage of SSI (In), reading (R), problem (P), experiment (E), guide (G), and reasoning (R). Furthermore, there are some real curriculum materials in practice, as shown in Figures 1 and 2.
RESULTS

After collecting and analyzing the gathered data, some important and interesting findings were revealed in this study. In this study, the students showed their misconceptions in the initial stage of SSI, but these students expanded, modified, or changed their concepts through reading, doing experiments, and asking experts. Moreover, these students could prolong their learning motivation in the period of this study.

Initial Stage of SSI

In the beginning of this study, the teachers needed to understand students’ initial stage of SSI. The teacher concluded that the students presented their impression of contaminated milk as “The contaminated milk that contains melamine causing kidney stones with infants and pets”. The interview data below demonstrated that
the students’ initial knowledge representations contained a lot of misconceptions. The impression could be simply a reflection of what they have received from the media without thought and judgment (The codes in the parentheses refer to the data collected as mentioned in data analysis in Table 1).

S3: Many infants drank contaminated milk caused kidney stones. (code: In-S3)
S5: Some pets too, because the contaminated milk is poison. (code: In-S5)
S4: Newspaper report said the vessels we eat with also contain melamine. (code: In-S4)
S1: I am afraid of kidney stones, because of drinking milk and using vessels every day. (code: In-S1)

The Knowledge Representations Cycle of Inquiry SSI

The problem arises.

In the first step of learning cycle of inquiry SSI, the teachers lead the students to discuss the SSI and tried to find a suitable research problem of the contaminated milk event. The students discussed with the teachers and with each other about the SSI after reading dependence materials and they began to feel confused that reports describe the event often in apparently contradictory way, such as:

S1: The news reported that melamine is not toxic as drink plenty of water because one laboratory injected with melamine in the mini-pigs for three months and no reaction. (code: P1)
S6: The newspaper said that melamine caused some infants in mainland died, which caused by kidney stones. (code: P1)
S3: However, melamine is toxic or not? (code: P1)

Identification the research problem of SSI. The students were curious about the formation of kidney stones, so they focus on problem about it. They did not know what contaminated milk is either. With the teachers’ guidance, the students generated questions by doing the keywords searching, such as kidney stones, contaminated, melamine, etc.. But, in the first discussion, the students did not have specific development, and the teachers guided the students to use keywords to search for. The students found the information on the Internet with keywords as kidney stones, melamine, contaminated milk, and others. In eight times of reading exploration, the students found that contaminated milk should have mixed with cyanuric acid to produce stones, and also found that the public knew kidney stones as calcium oxalate stones. Then, the students formed the question as “What is the difference between calcium oxalate stones and melamine stones?”.

S3: What is kidney stone? (code: P1)
S2: Why did the stones happen in kidney? (code: P1-1)
S1: Children drinking contaminated milk caused kidney stone, I find the information of kidney stones called calcium oxalate stone on the data. (code: R1-2)
S5: My father said that kidney stones seldom caused public died. Why they die in the case of contaminated milk? (code: P4)
S1: What is the difference between calcium oxalate stones and melamine stones? (code: P1-3)

Experiment. After eight weeks, the students not only got a lot of knowledge from reading inquiry activities from the original questions, but also generated many sub-questions which need to be further explored and clarified to obtain procedural knowledge. The students conducted experiments and found that the melamine is insoluble in water, and the contaminated milk brought back from China has special taste, however, they cannot figure out why the kidney produces calcium oxalate stones and melamine stones. The reports of experiments are shown as below:

S6: You can mix melamine and cyanuric solution, see what will happen? (code: P3-1)
T1: You can design an experiment to observe how it formed of kidney stones.
T1: The problem is related to pondus hydrogenii (pH), you try to experiment to see the relationship between kidney stones and the pH.
S4: My mother will buy a kidney to observe the structure of it. (code: P3-2)
S2: My daddy will configure acid-base solution. (code: P3-3)

The intervention of experts. This SSI topic involves advanced knowledge of chemical and medicine, so we look for chemistry professors and doctors for help. The students continued to search information and found calcium oxalate stones and melamine stones appeared in different parts of kidney, then, they link information provided by chemistry professor that calcium oxalate stones are ionic bonding, and melamine stones are based on hydrogen bonding. The interview data are shown as follows:
D1: The deposition of kidneys occurs on the pelvis the final site of processing, which does not matter, as more water as dilute. (code: R1-4)
D1: If the kidney stones jam and disfunctionalize the glomerular and tubular and in the first place, the kidney can not do the filtering. (code: R1-5)
P1: Different bonding, different properties. Calcium oxalate is ionic compound. (code: R1-6)
P1: Melamine can not dissociate, you will find hydrogen bonding between molecules. It is like staggered nets, cause a chain reaction. (code: R1-7)

Students’ reasoning. The students’ reasoning is that calcium oxalate stones and melamine stones appeared in different parts are caused by different chemical bonding. Then, they read the literature, the structure of difference substance will show different conductivity. Therefore, the students conducted experiments to understand the nature of different chemical compounds. The students hypothesized that the stomach is too acid that melamine and cyanuric acid are not able to produce stones. The final result is that melamine and cyanuric acid will produce precipitate in environment when pH ≥ 2. The reasoning of elementary school students are also shown as follows:
S2: I find the information of calcium oxalate stones which appear in the renal pelvis. (code: R1-3)
S2: But melamine stones appear on glomerular and tubular in the kidney. (code: R1-2)
S4: I suppose that different sizes causing calcium oxalate stones and melamine appear in different areas in kidney. (code: H1-2)
S5: I suppose different nature cause kidney stones appears in different parts of kidney. (code: H1-3)

What did the students learn. The students can identify illogical data, then, ask specific questions, and write summary after reading the contents. The students can design experiments and describe the specific process. Comparing the initial and the last state, the students’ knowledge representations performed enrichment reflect their change of misconceptions through inquiry learning and understood about the knowledge connect with chemistry and medicine. What elementary school students learned are also shown in the interview data of this study as follows:
S1: We use super microscope to observe the differences between calcium oxalate and melamine stones. (code: E1-8)
S2: Mentioned that the network ionic compound will conduct dissociation phenomenon, and molecular compounds do not. (code: R1-10)
S3: Why calcium oxalate granulate precipitate, and melamine/cyanuric acid precipitate present as net? (code: P1-9)
S4: We should do experiments to compare the differences in conductivity. (code: E2-1)
S5: We know stomach is very acidic that does not benefit the stone. (code: E2-1)

The students’ knowledge representations of the final stage show that they understand many declarative knowledge and procedural knowledge as the knowledge representations cycle of inquiry SSI show.

**Discussion and Conclusions**

The results of this study displayed a lot of factors that influence the process of SSI learning, including internal and external factors. The internal factors included reading, experiment, and problem; and the external factors included teachers, professor, doctor, and parents (see Figure 3).

As Figure 3 shows, from the initial stage to the final stage of SSI, the expansion of students’ knowledge representations interprets the clarification of the misconception of the SSI—the contaminated milk event through inquiry. The influence factors involved internal and external factors. The internal factors contained problem definition, reading dependent materials, experiment, and problem solving. The external factors contained teachers’ guidance of teaching strategies and experts’ guidance to systemize students’ knowledge.

Although the influence factors affect students’ knowledge expanded, we wanted to provide further suggestions through the findings of this study. In this research, we found that students’ motivation is the key to help students better engage and understand SSIs. The most important key factor to promote students’ ability of inquiry is their learning motivation (Hynd, Holschuh, & Nist, 2000; Pintrich, 2003; Polich, Ehlers, Otis, Mandell, & Bloom, 1986). The competition of science fair gave an external motivation for students’ inquiry. The problem forms internal motivation, which facilitates students to find answers to clarify their own
exploring the factors influence students’ knowledge representations

misconceptions. Although students believe the information on media report in the initial state, but reading strategy promotes problem arising, and the relevance of SSI provides the context of the situation, which enhances motivation, making the students break obstacles of interdisciplinary learning of adventure grade. Through the findings of this study, we suggested that reading might be the first step to improve students’ learning in inquiry of SSI. Furthermore, to enhance students’ learning motivation by using conflicts in SSI to create problems is one of the most important key points to help students learn in the activity.

References


The Effects of the “Be My Hope” Project on Disadvantaged Children’s School Burnout Levels

Gönül Onur Sezer, Ömür Sadioğlu, Asude Bilgin, Aynur Oksal, Hatice Çağlar Özteke
Uludag University, Bursa, Turkey

The purpose of this study is to determine the impact of university-sector cooperation project between Education Faculty of Uludag University and Bursa Provincial Security Directorate’s Child Branch on disadvantaged children’s burnout levels. The objective Secondary School Burnout Scale (SSBS), which was developed to determine burnout levels of students in secondary education institutions, was utilized. High scores from sub-dimensions show that the burnout levels are high and low scores from sub-dimensions show that the burnout levels are low. Thirty-six boys and six girls (42 children in total), who were selected after organizing interviews with counselors and directors of four schools decided by Bursa Provincial Security Directorate’s Child Branch, were included into the scope of the research. The impact of “Be My Hope” project on the school burnout levels of children of the study was determined by using paired samples t-test. As a result of this study, it was determined that “Be My Hope” project caused a significant difference on children’s school burnout levels and a decrease in students’ school burnout levels, which was observed by the end of first semester. When sub-dimensions of the scale were analyzed, a significant difference was seen in students’ school burnout in terms of “inadequacy” and “burnout based on family”. When the points of both dimensions were analyzed, it was observed that this difference was in favor of the final test. No significant difference was found in sub-dimensions “loss of interest in school” and “burnout based on school activities”.

Keywords: disadvantaged children, school burnout, “Be My Hope” project

Introduction

The term “disadvantaged children” refers to those children who are economically, educationally, linguistically, or socially disadvantaged. The phrase is often used vaguely to refer to poor life standards in general. Disadvantaged children are defined as children who lack the basic necessities of life, who have been denied the basic and universal rights of children and the opportunity to grow normally at their own natural rate, who are subject to detrimental environmental stresses of any kind and handicapped or disabled because of certain conditions of exogenous origin and lastly, and who are at risk of future psycho-educational problems (Moore, 2006; Dash, 2007; Sadioğlu & Onur Sezer, 2013).

The pressure of circumstances, such as bad environment, poverty, unemployment, low income, poor
well-being, and poor education, can all undermine resilience. It is when these structural conditions combine with other impoverishing experiences, such as violence, crime, isolation, an unhappy childhood, separation, and poor mental health—Those problems become insurmountable (The Action for Children Organization, 2010). All those factors cause cognitive, linguistic, learning, emotional, and motivational problems for children (Dash, 2007). Moreover, it can be said that those factors can cause school burnout in children. Yang and Farn (2005) defined children’s school burnout syndrome as “a state of emotional exhaustion, a tendency of depersonalization, and a feeling of low personal accomplishment caused by course stress, course load, or other psychological factors in the learning process”.

The aim of education is to provide children with skills required to function as members of society (Van Avermeat, 2006). National education policies of countries have to ensure greater enrollment and retention of disadvantaged children in schools, and decrease their dropout rates (Dash, 2007). There are four essential programs for dealing with disadvantaged children. These are prevention programs, compensatory programs, intervention programs, and transition programs.

Prevention activities and programs aim to prevent the occurrence of difficult situations for the disadvantaged children in the future. Compensation studies consist of activities aiming to overcome the problems created by existing risk factors (Kırcaali-Iftar, 2007). A prevention study that is applied before the occurrence of a risk factor is much more effective than a compensation study that will be applied after the said occurrence (Sarpdağ, 2005). Compensation studies suggest that, children, who encounter risk factors and are affected negatively, tend to have a deviant behavior and exhibit social disharmony, and in order to help them overcome this disharmony, social organizations and efforts are needed. While intervention programs focus on eliminating risk factors, transition programs are designed to help children see the relationship between what they learnt in school and how they will use the acquired knowledge in the real world (Smith, Polloway, Patton, & Dowdy, 2004). Additionally, particular out-of-school-time programs must have more specific aims for disadvantaged children, such as improving grades in school, developing conflict resolutions skills, improving arts performance, sport competence, academic skills and test scores, and encourage volunteering (Moore, 2006). The aim of this study is to research the impact of “Be My Hope” project, which is a compensation study, on the burnout levels of disadvantaged children.

**Methods**

The “Be My Hope” project is a compensation study which was first tried in Bursa during spring 2012-2013, and was conducted with the help of Bursa Provincial Security Directorate’s Child Branch, Education Faculty of Uludag University, as well as volunteer teacher candidates and disadvantaged children. The aim of the project is to help primary education disadvantaged children, who are unable to benefit from the same opportunities with their peers due to unfavorable conditions of living environment, participate in academic and social activities with teacher candidates in Education Faculty, to turn teacher candidates into role models and to reintroduce these students to society as self-respecting, considerate, happy, active, and productive individuals. For the purpose of the project, children chosen by Bursa Provincial Security Directorate’s Child Branch benefit from this process by participating individually or as a group in academic and social activities with volunteer teacher candidates at planned days and hours. Within the scope of study time of this project, social activities and sport activities are held for their academic developments by teacher candidates and disadvantaged children in recreational and sports facilities provided by Metropolitan Municipality of Bursa.
Teacher candidates organize study time for academic development of disadvantaged children groups in environments provided by city council. In these studies, Bursa Provincial Security Directorate’s Child Branch locates disadvantaged children, obtains the consent of families, transports children to related study areas, and provides security during the process of studies. The Burnout Scale, which was adapted into Turkish by Aypay (2011), was administered to the disadvantaged children of the project.

**School Burnout Scale (Elementary School Student Burnout Scale for Grades 6-8)**

School Burnout Scale for primary school students was developed by Aypay (2011) in order to determine the burnout levels of middle school students. The scale is composed of four sub-scales: burnout based on school activities, burnout based on family, inadequacy in school, and loss of interest in school. Each sub-scale is calculated separately. Higher scores obtained from sub-scales indicate higher burnout levels while lower scores show low burnout levels. In the analyses carried out by Aypay (2011), Cronbach’s alpha coefficient for internal consistency of the scale was found to be 0.67-0.86 for sub-dimensions. In this study, Cronbach’s alpha coefficient for internal consistency of the scale was found to be 0.90.

**Participants**

Thirty-six boys and six girls (42 children in total), who were selected after organizing interviews with counselors and directors of four schools decided by Bursa Provincial Security Directorate’s Child Branch, were included into the scope of the research. These children were from grades 6-8.

**Data Analysis**

The data obtained were analyzed by the Statistical Package for Social Sciences 13.0 (SPSS 13.0). The impact of “Be My Hope” project on the school burnout levels of children of the study was determined by using paired samples t-test. The level of significance was found to be 0.05 in statistical calculations.

**Findings and Discussion**

When Table 1 was analyzed, it was determined that “Be My Hope” project caused a significant difference on children’s school burnout levels and a decrease in students’ school burnout levels, which was observed by the end of the first semester. When sub-dimensions of the scale were analyzed, a significant difference was seen in students’ school burnout in terms of “inadequacy” ($t = 4.138; p = 0.000$) and “burnout based on family” ($t = 3.326; p = 0.002$). When points of both dimensions were analyzed, it was observed that this difference was in favor of the final test. No significant difference was found in sub-dimensions “loss of interest in school” and “burnout based on school activities”.

Moreover, there was not any study that aimed to determine school burnout levels of disadvantaged children. Dash (2007) stated that a meaningful education program, development of intellectual and social competencies, positive self-concept and social attitudes, and marketable vocational skills are very important for disadvantaged children, since they help realize their maximum potentials as individuals, live an adequate and successful life as citizens of the country, and contribute for the betterment of the society. It was discovered that the studies (Salmela-Aro & Tynkkynen, 2012; Kutsal & Bilge, 2012; Seçer & Gençdoğan, 2012) were mostly conducted in order to compare students’ school burnout levels by some factors, like gender and school type. Yedigöz and Capri (2013) determined in their studies that Overcoming Stress Program had an impact on “exhaustion” and “depersonalization” sub-dimensions of students’ burnout levels. Aypay and Eryılmaz (2011) stated in their study carried out with high school students that subjective well-being scores of students decrease as
the loss of interest in school and burnout based on family values get higher. Kutsal and Bilge (2012) stated that children with higher social support levels experience burnouts less frequently.

Table 1
Mean, Standard Deviation, and T-test Results of Scores Obtained by Disadvantaged Children in “Be My Hope” Project According to Pre-tests and Post-tests of School Burnout Scale

<table>
<thead>
<tr>
<th>Exercise</th>
<th>N</th>
<th>$X_{mean}$</th>
<th>SD</th>
<th>T</th>
<th>P</th>
</tr>
</thead>
<tbody>
<tr>
<td>Loss of interest towards school</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pre-test</td>
<td>42</td>
<td>26,762</td>
<td>7,637</td>
<td>1,476</td>
<td>0.148</td>
</tr>
<tr>
<td>Post-test</td>
<td>42</td>
<td>24,904</td>
<td>6,636</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Inadequacy in school</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pre-test</td>
<td>42</td>
<td>12,500</td>
<td>3,514</td>
<td>4,138</td>
<td>0.000*</td>
</tr>
<tr>
<td>Post-test</td>
<td>42</td>
<td>10,285</td>
<td>2,873</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Burnout based on family</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pre-test</td>
<td>42</td>
<td>10,833</td>
<td>2,574</td>
<td>3,326</td>
<td>0.002*</td>
</tr>
<tr>
<td>Post-test</td>
<td>42</td>
<td>9,143</td>
<td>2,728</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Burnout based on school activities</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pre-test</td>
<td>42</td>
<td>10,262</td>
<td>3,696</td>
<td>1,210</td>
<td>0.233</td>
</tr>
<tr>
<td>Post-test</td>
<td>42</td>
<td>9,548</td>
<td>2,778</td>
<td></td>
<td></td>
</tr>
<tr>
<td>School burnout total score</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pre-test</td>
<td>42</td>
<td>60,357</td>
<td>13,978</td>
<td>3,040</td>
<td>0.004*</td>
</tr>
<tr>
<td>Post-test</td>
<td>42</td>
<td>53,881</td>
<td>12,637</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Note. * $p < 0.05$.

Conclusions and Suggestions

In the light of the obtained data, it was determined that school burnout levels of “burnout based on family” and “inadequacy in school” sub-dimensions of disadvantaged children from “Be My Hope” project decreased at a significant level. It is thought that sustaining the project in other periods may be effective on reducing the burnout levels of disadvantaged children in the “loss of interest in school” and “burnout based on school activities” sub-dimensions of the scale.

In accordance with the results of this study, the following suggestions can be presented:

1. Such compensation studies regarding disadvantaged children may be generalized;
2. In-service training may be organized in order to enable teachers who are effective in preventing disadvantaged children from experiencing school burnout, counselors, and school directors to work in cooperation and to increase the necessary support;
3. Family education may be included to procure environments that support children’s developments in order to make parents communicate with their children in a more efficient way;
4. Cooperation may be sustained between other institutions of the society through compensation studies regarding disadvantaged children;
5. Results of the project may be supported with data obtained from qualitative studies.

References


The Core Competencies of Open Universities in China: Theory and Practice*

Wang Xiao-nan, Chen He-nan
Shanghai Open University, Shanghai, China

The article, on the theory and practice of core competencies of open universities, focuses on a new field and tendency of contemporary open university research and the certain consequences of its function expansion, system transformation, and environment change. The new century is faced with boundless competition, economic globalization, new technology revolution, and the tendency of internationalization, popularization, and marketing ability of China’s distance education. Open universities are confronted with a complicated situation of resource shortage, disturbing environment, disordered system, low efficiency, and increasing surviving pressure. Open universities demand new theories to explain new perplexity and contradiction, to integrate resources and abilities, and to seek new ways of new survival and development. Consequently, the research on core competencies of open universities emerges on the basis of the above situation. Previous studies on “core competencies” have deliberated either on the theoretical concept of core competencies or its usefulness as a strategic tool for firm. In spite of a large number of papers on the subject, as is known to the author, there has been no study which spells out a feasible framework for leveraging the concept of core competencies in creating competitive advantages for open universities. The core competencies of open universities are a system mainly composed of culture, institution governance, teaching, resource integration, and social service. The establishment and operation of this system will play an important role in obtaining competitive advantages and be the winner in the final for open universities. This paper tries to use different methodologies and core competencies theory to define the concepts, components, and structure of China’s open universities, and then, puts forward influential factors and ways to cultivate and promote the core competencies of them. The processes of promotion consist of function, cultivation, integration, and renewing.

Keywords: core competencies, open university, cultivating, promoting

Introduction

United Kingdom Open University (UKOU) was founded in 1969 and has become a new institution and an example in the world since it began to enroll students. From the establishment of UKOU, it differs from other traditional universities. It caters for the job adults and the vulnerable groups and provides high education to all students with new technologies and media.

The article, on the theory and practice of core competencies of open universities, focuses on a new field

*Acknowledgement: This work was supported by Shanghai Association of Higher Education (Grant No. ZCGJ36-13). The Project is “The Governance and Operating Mechanism of College System in the Open University Under the International View”. Wang Xiao-nan, M.A., lecturer, Urban Public Security Management College, Shanghai Open University. Chen He-nan, M.A., lecturer, Faculty of Foreign Languages, Shanghai Open University.
and tendency of contemporary open university research and the certain consequences of its function expansion, system transformation, and environment change. The new century is faced with boundless competition, economic globalization, new technology revolution, and the tendency of internationalization, popularization, and rapidly growing marketing ability of China’s distance education. Open universities are confronted with a complicated situation of resource shortage, disturbing environment, disordered system, low efficiency, and increasing surviving pressure. Open universities demand new theories to explain new perplexity and contradiction to integrate resources and abilities and to seek new ways of new survival and development. Consequently, the research on core competencies of open universities emerges on the basis of the above situation.

**Literature Review**

“University’s core competencies” is a transplanting concept comprising “core competencies” and “university”.

Ever since the publishing of a seminar article of Prahalad and Hamel (1990), a lot of papers have been reported and written about the concept of “core competencies”. Most researchers on the subject agree that conceptualizing organizations as a set of “core competencies” rather than distinct “strategic business units” (SBUs) helps in enhancing their competitiveness. SBUs should be treated only as potential reservoirs of core competencies. For sustainable competitive advantage, corporations have to devise ways to identify, cultivate, and exploit the core competencies that make growth possible (Prahalad & Hamel, 1990). Though “core competence” has been universally recognized by scholars as a useful concept, there are very few studies (conceptual and empirical) which seek to explain the ways in which this concept can actually be used for the benefit of organizations.

McClelland (1973) suggested the term “competency” as a criterion for judging successful performance; competency frameworks have been applied in various settings, for example, for assessing company managers and employees and as training and recruitment tools (Rifkin, Fineman, & Ruhnke, 1999; Project Management Institute (PMI), 2002; Foxon, Richey, Roberts, & Spannaus, 2003), and for educational professionals, such as instructors, instructional designers, and evaluators for the purposes of staff development, recruitment, and curriculum design (Richey, Fields, Foxon, Roberts, Spannaus, & Spector, 2001; Klein, Spector, Grabowski, & De la Teja, 2004; Russ-Eft, Bober, De la Teja, Foxon, & Koszalka, 2008). So (2006) characterized these as attempts to define the human resource needs of the knowledge-based and capitalist society. Some see competency being defined from certain stakeholders’ perspectives and interpreted in different ways according to different interests (Burgoine, 1993; Hoffmann, 1999), some see it as fuzzy despite its usefulness in bridging the gap between education and job requirements (Le Deist & Winterton, 2005), but many agree that defining competencies explains what persons engaged in various occupations or tasks are expected to do to be regarded as performing well.

Several studies on core competencies in distance education focus on the prerequisite knowledge, skills, and attitudes needed in distance education instructors, tutors, trainers, and counselors (Thach & Murphy, 1995; Williams, 2003; Mishra, 2005; Darabi, Sikorski, & Robert, 2006). These are helpful in identifying strengths and weaknesses and grounds for improvement in performance, staff development and recruitment, tenure, and promotion systems. However, few attempts have been made to define the core competencies of distance education or open universities.
Methodology

Several methods have been adopted for defining and developing competencies. The most commonly applied of these is the Behavioral Event Interview (BEI). It arrives at definitions of competencies by comparing outstanding performers with average or ordinary performers (Mc Clelland, 1973; 1998). Competencies are defined through structured interviews in which successful and ordinary performers describe what they did (L. M. Spencer, & S. M. Spencer, 1993). Empirical data collection and systematic content analysis are seen as the main advantages of the BEI.

Survey methods have been applied in several studies, including those done by Klein et al. (2004) and Russ-Eft et al. (2008). The advocates of this approach also suggest that this is an effective, quick, and inexpensive means of collecting data on performance characteristics and achieving consensus on competencies.

A university’s core competencies are not generated by the university itself but developed through long-term accumulation and cultivation. How to diagnose and discern a university’s core competencies and put it into the practice of the university’s reform is an important part in this research. It is difficult to measure a university’s core competencies totally in quantification; instead, it is more desirable for experts to judge it regarding experiences and data they possess. Therefore, we adopted the way of “soft evaluation”. It has two advantages: Firstly, it is not limited to statistic data; Secondly, we could make full use of personal intelligences and experiences and consider problems in full scale to avoid and reduce one-sidedness and limitation that statistic data may have. But “soft evaluation” also has some obvious disadvantages: Firstly, it is easy to be influenced by estimators’ personal thoughts and their experience limitations; Secondly, too complex evaluating work will take more time for estimators to find out the consisting factors of core competencies. Therefore, we adopted the way of “factor analyzing”.

Definition of the Core Competencies of Open Universities

Based on the above research, the paper gives the definition first. The core competencies of open universities are based on the institution culture and management, aim to keep the competitive advantage and sustainable development; they differ from other universities in the abilities of resource integration, teaching and serving the society. We can understand it from the following aspects:

1. The core competencies of open universities are internal abilities based on the university culture. Meanwhile, it is a cumulative knowledge which needs long-term accumulation. From this aspect, an open university is a new institution which was founded in such a hasty with no solid culture foundation comparing with other traditional universities;

2. The core competencies of open universities are based on the institution’s culture and management. It roots in the university institution itself, relying on management, organization, and coordination to realize its aim. This type of management ability is exemplified in all the university activities;

3. The core competencies of open universities are a complex system of different abilities, which is more than bringing all the single abilities together. It is the result of chemical reaction which releases more powerful energy;

4. The core competencies of open universities are the ability with further development. It is not fixed and always changes with the changing and competitive environment.
Analysis

The core competencies of open universities need fostering, cultivation, and promotion. The concept is the first point of problem research, and it is also the basis for people to define the patterns and methods of cognition and thought of the core competencies of open universities. On the premise of defining the concept, the paper analyzes the positive and negative factors and points out four ways to promote the core competencies of open universities.

Analysis on the Negative Factors Influencing the Core Competencies of Open Universities

Lack of autonomy of higher education. The autonomy of higher education is an important problem that troubles higher education in China. Lacking the autonomy of higher education limits and restricts the initiatives and creativeness of open universities.

Lower comprehensive strength and stability of teaching staff. Another problem faced by open universities is the lower comprehensive strength and stability of teaching staff. In 2009, the ratio of student to teacher in open universities is 56:1. For specialized subject, the highest ratio is 454.5:1 and the lowest one is 1.3:1. From the data, we can conclude that the allocation of teaching staff in different subjects is not equitable. On the other hand, comparing with other universities, teaching staff’s capability of teaching and scientific research needs to be improved. Part-time staff, accounting for a large proportion of the teaching staff, seriously affect the stability of human resources in open universities.

Social prejudice and misunderstanding of open education. The reputation of open universities is a result of long-term accumulation. Traditionally, open education in China was looked down upon by people and suffers from long-term suspicion and discrimination, which creates an appalling environment for open education in China.

Outside competitive environment. The paper will use Michael Porter’s Five Forces Model (see Figure 1) to analyze the outside competitive environment. The five forces refer to the bargaining power of customers, the threat of new entrants, the bargaining power of suppliers, the competitive rivalry within an industry, and the threat of substitute products.

Threat of new entrants.
1. Distance providers abroad;
2. Domestic companies providing distance education;
3. Domestic universities and colleges providing distance education.

Threat of substitute products or services.
1. Institutions providing distance education training;
2. Institutions providing continuing education training;
3. Other substitutes available in the market.

Bargaining power of customers (buyers).
1. Students;
2. Employers;

Bargaining power of suppliers.
1. Companies providing technologies;
2. Institutions providing education resources;
3. Part-time teachers.

**Intensity of competitive rivalry.**
1. Adult universities;
2. Adult colleges in China’s universities;
3. Spare-time schools or self-study exams.

---

**The Positive Factors Influencing the Core Competencies of Open Universities**

**Organigram.** In 2010, the system of China’s radio and TV universities (CRTVUs) consisted of the Open University of China (OUC, formerly CCRTVU), 44 provincial radio and TV universities (PRTVUs) (referring to the radio and TV universities established in provinces, autonomous regions, and municipalities directly under the central government and in cities with economic planning directly supervised by the state council and other independently established RTVUs), 1,103 branch schools of radio and TV universities at the prefecture and city level (referring to 926 branch schools and 177 working stations under the direct administration of the PRTVUs), and 1,853 working stations of county-level RTVUs (referring to the working stations under the direct administration of the branch schools) (The Open University of China, 2013). This is the largest scale in the world (see Figure 2).

**Outside environment—Government policy.** Chinese government puts forward developing plans: “To establish open university well” and “To advance the modern distance education”, which gave clear direction to
the transformation and reformation of open university system.

**Flexible education pattern.** Open universities have established open and flexible mission and vision. They carry out a policy, which welcomes all types of students at different academic levels, and then, cultivate them into qualified graduates. “For all learners, all for learners” is their mission. “For all learners” means open universities shall provide quality education to everyone in the society. “All for learners” means open universities shall create a learner-centered learning environment providing services based on learners’ personal features and needs and provide them with an all-round development.

**Findings**

How to cultivate and promote the core competencies of open universities is the main point in this research. Professors Lai and Wu (2002) suggested that the process should go through three stages (see Figure 3):

1. Developing core and special skills or knowledge;
2. Integrating competitive factors;
3. Renewing core competencies.

According to the theory, we conclude four ways of cultivating and promoting the open universities’ core competencies.

![Figure 3. The process of cultivating and promoting the core competencies of open universities.](diagram)

**Position Stage**

Constructing open universities well and constructing an open university pattern are China’s concrete education missions, which shows the directions for the CRTVUs’ system to transfer and reform. Hao (2013) has pointed out: Open university itself is an important transformation based on CRTVU, namely, the reform of functional position, education model, and system of organization. After renaming China Open University, Beijing Open University, and Shanghai Open University, constructing open universities has been promoted to the virtual phase. How to position in a new stage becomes a main task in this stage. Establishing the correct mission and vision and finding the scientific position are the basement of cultivating and promoting the open universities’ core competencies.
Renew the vision and mission. With the formation of information society and learning society, and the coming of knowledge economy era, modern distance education offers equal learning opportunities to all learners, which makes receiving higher education no longer the rights enjoyed by the minority of the people, but the basic condition for individual existence. Open universities celebrate five core values—openness, responsibility, quality, diversification, and globalization. “Openness” is its education philosophy, containing the opens in school-running patterns, students, teaching approaches, management, and education resources. It means that any kind of idea, method, pattern, and action can be adopted and practiced by open universities as long as they contribute to national development, social progress, and public well-being.

Finding the position scientifically. Through open universities’ own effort and development, and by adapting themselves to the national socioeconomic development deeds, open universities speed up the building for a lifelong education system and a learning society in which all members learn and pursue lifelong learning. The strategic target of open universities is three-folded: Within the Chinese higher education system, open universities shall emerge as brand-new members that have torn down all walls to embrace all members of society and sets equal store by degree and non-degree continuing education; among the world’s clusters of open universities, the open universities in China shall become dynamic mega-universities with a distinctive Chinese identity and a global influence; and it will become a staunch force in the nation’s effort to build a lifelong education system and a learning society, where all learners can pursue lifelong learning.

Cultivation Stage

Cultivating teaching groups and staff. The principles of “combining full-time and part-time teachers, with part-time teachers as the main force, and putting all faculty members under dynamic administration” shall be integrated into the effort of the open university’s putting together a well-structured contingent of competent teachers, each with a unique expertise, a top-notch team of professional managers, and a squad of technicians and engineers in support of distance education. Only thus can the development of the open universities be sustained with the powerful support of human resources. Moreover, open universities in China shall consolidate their positions by establishing powerful teaching groups, employing renowned experts and professors chosen from at home and abroad, as well as professionals selected from industries and enterprises who are experienced and well-versed in theory as textbook chief editors and course presenters. Major efforts shall also be made to cultivate full-time teachers and project managers with expertise in project management, course design, resource development, instruction planning, and distance learning support.

Cultivating the ability of constructing specialties. Academic courses shall be rationalized and offered flexibly on account of the characteristics and trends of industries and regional economics; in particular, the curriculum should cater to the salient features of industries and localities. Programs shall be designed jointly with employers in industries and enterprises so that learning outcomes are industry-endorsed and meet qualification standards; specialties should be target-specific and practical, pay equal attention to instilling knowledge and cultivating capabilities, and combine academic education with vocational training. In line with the principle of “differentiated development”, open universities are entitled to offer special programmes and courses that lead to specific certificates and diplomas.

Cultivating the ability of learning support provision. The learning support of open universities is based on the learning support system of broadcasting TV university. The effective learning support in distance education depends largely on the teaching structure and management, which means effective learning support
should not only include course design and delivery, the control of the learning and teaching pace/tempo, and the summative assessment at the end of each semester, but also the management during the whole process of teaching and learning. This paper indicates that learning support system should be cultivated through four measures.

**Management service.** In order to realize the adaptability of distance education, we need to change the unreasonable parts of traditional methods for distance teaching management. Through improvement of the ways in teaching management, we can carry out effective management and enable teaching and management to be in a good order and in an efficient way.

**Learning resource service.** The mission of distance education lies in the objective of enabling our students to be independent learners and develop autonomous competence. We have taken four measures:

1. Sending students brochures and offering courses, like entrance guidance, to help them get familiar with the new learning environment and to have a better idea of the teaching and learning mode;
2. In the course of formative assessment, we enhance induction and assessment of individualized and collaborative study and encourage them to make full use of online resources for their independent learning;
3. By carrying out various kinds of skill training programs, we constantly improve students’ autonomous learning competence;
4. We take guided-learning as our basic principle of teaching, trying to bring about new methodology to increase students’ confidence and autonomous learning abilities.

**Learning process service.** In the whole process of students’ autonomous learning, the teaching objective will be jointly fulfilled through interaction between teachers and students. The study center has clarified requirements and measures to guide the students in their independent learning and set up regulations for the teachers to conduct face-to-face tutorials and to deal with students’ questions and assignments.

**Technology service.** Open universities work to form information technology (IT) supported reception and service team, step up interaction with learners, keep closer track of students’ study performance, and put personalized distance learning backup system in place. With the development of information and communications technology (ICT), satellite TVs and computer networks have been used at China Open University to deliver courses.

**Integration Stage**

**Integrating system resources.** At the same time, it is not hard for us to see that the formation of system is more important and urgent than changing the name of TV universities. The system of China Central Radio and TV University has already developed into super distance educational system after more than 30 years’ development. After doing a deep research, it is not hard for us to see that the reason of the unhealthiness of the system, especially the maladjustment of organizing framework lies in the limitation of system, so how to find new position in the new era and create an organizing framework and system are important in this new age.

**Integrating course resources.** Course resources include lectures, tutorials and open courses, and services for learning resources to be searched, subscribed, delivered, and applied. Higher education institutes, vocational and technical schools, education training institutions, publishing houses, industries and enterprises, and communities shall also benefit from the public services provided by open universities.

**Integrating platform resources.** Open universities will establish an online platform with advanced IT and the Internet to achieve speedy connection between the headquarters and the branches, local colleges, and
study centers. This demands high-speed Internet access service with national coverage to support the universities to provide distance education.

**Renewing Stage**

Path dependency theory was originally developed by economists to explain technology adoption processes and industry evolution. The theoretical ideas have had a strong influence on evolutionary economics (Nelson & Winter, 1982). There are many models and empirical cases where economic processes do not progress steadily toward some pre-determined and unique equilibrium, so that the nature of any equilibrium achieved depends partly on the process of getting there. The outcome of a path dependent process will not converge towards a unique equilibrium but instead reach one of several equilibriums.

The strategies of open universities will change with the changing environment, the resources, and universities’ abilities. The strategies will be influenced by organizational and cultural management. So the renewing stage of the core competencies of China’s open universities is to strengthen the intra-governance and to provide support to cultivate and promote the core competencies of open universities. This paper will give some suggestions about governance. By “constructing the system according to law, academic affairs, self-management, democracy supervision, and stakeholders participate actively”, we can succeed in realizing the work of transforming into China’s open universities truly. Constructing the open universities with Chinese features is on the way.

**Conclusions**

The core competencies of open universities are a system mainly composed of culture, institution governance, teaching, resource integration, and social service. The establishment and operation of this system will play an important role in obtaining competitive advantages and be the winner in the final for the open universities. This paper tries to use different methodologies and core competencies theory to define the concepts, components, and structure of China’s open universities, and then, puts forward the ways to cultivate and promote the core competencies of open universities. The processes of promotion consist of function, cultivation, integration, and renewing.

Lastly, the core competencies of open universities could be interpreted differently by different participants since different open universities in the world have different cultures and complex behaviors. Further studies including concrete and measurable factors of core competencies are needed to minimize the effects of such possible differences. The four-phase processes of promotion in the present study are found to be a useful method which can be applied to develop and elaborate core competencies in a wide variety of high education contexts.

**References**


Cultural Factors Behind Semantic Differences*

Wang Xiao-yan
Changchun University, Changchun, China

The present paper discusses something about translating between English and Chinese from a cultural point of view. The paper, first of all, gives a brief account of the relationship between language and culture. So, in the second part, by analyzing some examples, the paper explores the cultural factors that contribute to explain semantic differences in Chinese and English: different religious factors, historical factors, and thinking modes. Translation is the major way of cultural exchange. In the third part, the paper suggests some translation principles: faithfulness, acceptability, and taking degree of cultural fusion into consideration. The paper aims to promote the establishment of the cultural point of view toward translating.

Keywords: cultural factors, semantic difference, translation

Introduction

It is a common thought about translating that each word should put into its counterpart of the target language. Most time, it is right to do so, but, on some occasions, it does not work. Sometimes, people even feel at a loss when they read translated versions.

Language is the carrier of culture. On the one hand, language tends to reflect a nation’s cultural background. On the other hand, every element of a culture has its influences on language. Word is the basic unit of language (Zhang, 1999, p. 153). Words carry meanings for the language, and meaning is not isolated, it is the reflection of a certain culture, which determines the meaning and reveals its shadow through the meaning. If we compare words of a language to leaves of a tree, then, culture is the root of the tree. What the leaves look like depends on the condition of the root.

A nation’s culture gradually takes its shape in people’s living, working, and other social activities. Each nation has its unique culture, because each has its own path of development. Therefore, it seems that no two words in any two languages ever have precisely the same meaning. Only when a word is in a certain culture, does it have a definite meaning. Being put into another culture, it is possibly of another meaning. Semantic differences arise on such occasions.

Cultural Factors Contributing to Explain Semantic Differences

There are a lot of words or terms of both the two languages which are seemingly synonymous but actually refer to quite different objects or conceptions. Most of this kind of phenomena finds their roots in cultural distinction analysis. The cultural distinctions between China and English-speaking countries, mainly Britain and America, exist in history, social systems, living habits, ways of thing, etc.. Many cultural factors contribute

* Acknowledgement: This paper is a part of the results of the research program “The Application of Cycle Monitoring Theory in the Procedure of SLA” (2010, No. 217), in which the author has participated.

Wang Xiao-yan, associate professor, School of Foreign Languages, Changchun University.
CULTURAL FACTORS BEHIND SEMANTIC DIFFERENCES

147
to explain semantic differences.

1. Languages originate from people’s living, working, and other social activities.

The meaning of a word is surely branded with the features of the environment from which it comes. Words of both languages with different originating backgrounds can hardly be equivalent, even if they have the same surface meaning.

For example, “知识分子” (zhi shi fen zi) is usually translated into English as “intellectual”, for they are literally corresponding. But in fact, their referents are not equivalent. The Modern Chinese Dictionary (Lu, 1983) explains the meaning of the term “知识分子” as “People who have relatively higher education or people who are engaged in mental work” (translated into English). In everyday life, Chinese people use the term “知识分子” to refer to teachers, college students, doctors, engineer, etc.. In some under-developed areas, even middle-school students are considered as “知识分子”, because they do have “relatively higher education” than other people in the area. While in Western countries, the word “intellectual” only refers to people who have high education and academic status. Tracing the history of the two words gives us some explanation about their semantic difference.

The root of the word “intellectual” is “intellect”. According to Webster’s New Collegiate Dictionary (Neufeldt, 1982), the word “intellectual” was first used in 1594, when bourgeois, as a cultured class, came into being in Europe. At that time, it referred to this newly-born class with higher education, who are only a small percentage of the population. While the Chinese term “知识分子” never appeared until the beginning of the 20th century, when Marxism was spread into China. It was widely used, especially after the May 4th Movement, in which young students played the key role. The term “知识分子”, thus, refers to people who have certain scientific and social knowledge. It covers a fairly wide scope of members of our society.

Thus, equivalent as pairs of terms seem that they actually refer to different things for the different social and historical background of their origination. Although, so far, as many words are concerned, the details of their history are forgotten or neglected, because words keep developing instead of staying still after they appeared. Their historical background still functions deeply beneath the surface of a language, because they refer to different groups of people, and even some corresponding words with the same referent are not necessarily equivalent.

Take another English word “owl” (“猫头鹰” (mao tou ying) in Chinese) for example. In China, people dislike owls and often associate bad luck and misfortune with them. But in English-speaking countries, people believe that owls stand for wisdom. Both the Chinese word and the English word refer to the same kind of bird, but the associations about the bird are quite different.

With their culture originated from pictograph, Chinese people like thinking in images. The appearance of things occupies an important position in their emotion. They like to associate some abstract concepts with animals or plants in nature according to their appearances or characteristics. Although no one is so foolish that he/she thinks beautiful things as good and ugly ones as bad, Chinese people are used to putting good things together with those things that make people feel bright and lively and evil things with those dark and shade. Owls always come out at night and their appearance makes people unpleasant. Generally speaking, it is a kind of dark and stealthy animal in Chinese people’s eye. But Western people think in a different way. In their opinion, owls, that come out at night while others are sleeping, is a symbol of different thought with the ordinary. In this case, it is the different aesthetics mentality and ways of thinking of peoples that matter.

2. Religion is a key part of a culture.
It influences people’s character and ways of thinking, and then, decides people’s attitudes toward some words.

Buddhism is an essential part of Han Culture. Thousands of years of Chinese history has witnessed that the theory and ideas of Buddhism have influenced in the Han people greatly. Buddhism considers life as life itself, while wealth and material treasures in life are only transient clouds. It maintains that people should have few desires to cleanse the soul and gain the happiness of life. While Chinese people’s attitude toward life is consciously and unconsciously, more or less influenced by this opinion. Although they encourage “上进心” (shang jin xin), they do not think to desire or pursue too much is proper. This is why the word “ambitious”, which carries a positive meaning in English, often makes Chinese people not so pleasant. In English-speaking countries, especially in the USA, whose developing history determines that the social system and people’s mentality encourage the accumulation of personal wealth and highly praise those people who achieve their goals through their own efforts. They think it is fair and square only if what they have got is due to their own hard working. The distinction between the emotional coloring of the corresponding words “ambitious” and “富有野心的” (fu you ye xin de) in Chinese brings misunderstanding in people’s communication.

A Few Suggested Translation Principles

Translation is the bridge between two languages (Jiao, 2012, p. 11). It is the source language and the underlying culture on its one end and the target on the other. To make the two ends communicate and understand each other is the purpose of translation.

Language is the dress of ideas. Translating is to put the source ideas into target language, just like changing the dress of an idea into another one, so that the idea can be understood by the target language users. The target text has a different form, but provides an equivalent comment, which requires faithfulness to the source text. The essence of being faithful is faithfulness to the meaning but not to the language itself. The meaning of a word consists of two layers, meaning on the surface and meaning beneath the surface. Faithfulness to the meaning is to be faithful to both of them. Or if full faithfulness cannot be achieved, faithfulness to the deep meaning is more significant.

A word’s literal meaning can be found in dictionaries, which is far from enough. To comprehend a word only on the surface is often found misleading. Attention to cultural background is required so as to grasp the precise value of a word.

For example, “不孝有三, 无后为大” (bu xiao you san, wu hou wei da) (There are three ways of being an unfilial son, but having no son to inherit the status and the surname is the most serious item) is an old Chinese saying. Why should “后” (hou) be translated into son or boy, but not a child? Chinese people of old age looked down upon females and female children were not regarded as true descendants. But Western people have different sense of value. Only pointing out the definite referent of “后” can the native English-speakers be provided with the precise meaning of the word.

Therefore, acceptability is another crucial factor for the success of translating. Keeping in mind whether the translation work can be accepted and understood by future readers, a translator needs to take cultural background of the target language into consideration. Some special dealing techniques are required for words with strong cultural flavor.

For another example, “买菜” (mai cai) is so familiar to Chinese people, and it seldom occurs to them to think carefully about its concrete meaning. But, when doing translating work, the term “买菜” is not so easy to
deal with “菜” (cai), which literally means “vegetables”. But in fact, to Chinese people, “菜” here is a concept that refers not only to vegetables, but also to meat, fish, eggs, etc. “买菜” actually means to buy all kinds of raw materials for Chinese style dishes. Western people have quite different habit in eating and drinking. They have no the concept of “买菜” as Chinese people do. What they usually do is to buy ready or half-ready food, such as hamburgers, milk, meat, butter, etc. Their dishes are also different from the Chinese ones, usually fried steak, sausage, or something like that. Western people’s concept on dish is not like what Chinese people have, and they have no corresponding term for the Chinese term “买菜”. So, if “买菜” is translated literally as “to buy vegetables”, most of its meaning is missing. But neither can free translation, such as “to do some shopping for dinner” express its meaning accurately. Chinese people buy raw materials for meals almost every day or even more than once a day. The habit of the Western people is usually to go shopping once a week and what they buy are not defined to food and drink. The existence of cultural gap makes it necessary to give up some distinctive features of the original and to adapt it to the target culture.

There are gaps between cultures. But it does not mean that each culture is an isolated one. Various cultures in the world exchange with each other and seep into each other, especially in such an age of information. As two influential developed countries, the British and American culture keep infiltrating into other cultures almost every day, and vice versa. After China has opened up, Chinese culture is not unknown to the world any more. Rapid economic development of China has promoted China’s status in the world. Various degrees of fusion exist among various cultures in the whole world. Cultural exchanging leads to cultural fusion sooner or later. The gap between cultures can never disappear, but it becomes narrower and narrower slowly and constantly.

Translating is a major way of cultural exchanging. Translating itself is a complicated and dynamic activity with high degree of practicality. The existence of translating theories does not mean that those theories could apply to all problems arising in translating. As for dealing with semantic difference, things are especially the same. Translating is translating meaning (Nida, 2000, p. 126). The fundamental intention of translating is to exchange between different languages and cultures. The goal of successful exchange attained and the specific techniques employed are not so important. Semantic difference should be handled flexibly according to concrete conditions. If there are some principles, they are faithfulness, acceptability, and taking degree of cultural fusion into consideration. What remains to be pointed out is that when formal correspondence conflicts with the equivalence in terms of meaning, priority should be given to the later to maintain the equivalence of meaning.

Conclusions

Cultural distinctions are now widely noticed. As trans-cultural communication, translation is confronted with the challenge of cultural distinctions, which must be overcome to transfer the meaning and even the spirit of the original. The problems and examples about translating presented above are actually only a drop of the ocean. It is not possible or necessary to bring the whole ocean here. The purpose of this paper is not to provide an overall direction for translation. In fact, even articles or books on translating cannot cover the vast scope of translating. Translating is like arts and requires creativity. Through analyzing only some of the semantic differences, the paper is to promote the establishment of the cultural point of view toward translating and to evoke further research on this topic.
References


