ISSN: 1300-915X

IOJPE

INTERNATIONAL ONLINE JOURNAL OF PRIMARY EDUCATION

International Online Journal Of Primary Education

International Online Journal of Primary Education

ISSN: 1300-915X

JUNE 2014

Volume 3 - Issue 1

Prof. Dr. Teoman Kesercioğlu

Editor-in-Chief

Prof. Dr. Şule Aycan

Editor

Published in TURKEY

Contact Address:
Prof. Dr. Teoman KESERCİOĞLU - IOJPE Editor in Chief İzmir-Turkey

Message from the Editor-in-Chief

I am very pleased to publish first issue in 2014. As an editor of International Online Journal of Primary Education (IOJPE), this issue is the success of the reviewers, editorial board and the researchers. In this respect, I would like to thank to all reviewers, researchers and the editorial board. The articles should be original, unpublished, and not in consideration for publication elsewhere at the time of submission to International Online Journal of Primary Education (IOJPE), For any suggestions and comments on IOJPE, please do not hesitate to send mail.

Prof. Dr. Teoman Kesercioğlu
Editor-in-Chief

Table of Contents

Articles

IOJPE
International Online Journal of Primary Education
ISSN: 1300 – 915X
www.iojpe.org
2014, volume 3, issue 1

THE MERGING OF UNIVERSITY AND COMMUNITY: FURTHERING COLLABORATIVE EDUCATION

Dr Connie ISRAEL
UKZN Foundation,
Israel@ukzn.ac.za

ABSTRACT
The focus on community engagement and social responsibility in many higher education institutions in South Africa today, brings the University directly into a collaborative relationship with Society. The ivory tower is no more: partnerships are formed with a view to enhancing educational practice and the quality of community health and well-being. This paper briefly reviews the discourse surrounding community engagement in higher education, the University of KwaZulu-Natal's position in this endeavour and models of community engagement in South Africa. However, it focuses on avenues for community engagement enabled by the University of KwaZulu-Natal's Foundation, which seeks investment for strategic development projects. It concludes by presenting two such projects which the Foundation is supporting, suggesting that partnering the university with community in a mutually beneficial relationship, merging needs, resources, skills, knowledge and ideals, lends new meaning to "Collaborative Education".
Keywords: University, Community, Collaborative Education

INTRODUCTION

Given the background of social, political and economic change in South Africa, community engagement and social transformation and responsibility have dominated discourse in higher education contexts. While the shift in paradigm from *community service* to *community engagement* is evident, there is, at the University of KwaZulu-Natal (UKZN), which has a long history of community engagement, and in the country's higher education institutions at large, ongoing debate and interrogation about what this means and how it reinterprets the role of the university, its model of teaching and learning, and the research it supports. How do scholarship and doing good works interact? Does higher education mean being responsive and responsible? Does it effect social transformation and social justice? What is the relationship between education and community? Is community engagement a core or supplemental function of the University? What are the factors which have impacted on the development of community engagement in universities? Should sharing and caring be one of the norms of higher education outcomes and practice? How does research at a university such as UKZN, which is research-led, further this collaborative, engaged relationship? Amongst others, Fourie (in Community Engagement in Higher Education Conference Proceedings, 2007) and Hall (in Community Engagement in South African Higher Education, 2010), address these and related issues.

Policies are being developed around responses to these questions, to incorporate how students may be evaluated for community engagement, how curriculum and practice, whether in the form of internship or research, may be built around it or infused with it. One of the principles and core values of the University of KwaZulu-Natal is to "Embrace our responsibility as a public institution to support and contribute to national and regional development, and the welfare and upliftment of the wider community, through the generation and dissemination of knowledge and the production of socially-responsible graduates" (UKZN Vision, Mission, Goals and Core Values, no.3). There is no need to rationalize further this commitment and the call for action, often made by theological institutions, as illustrated by Henry (2011 para.2): indeed, in a world with 925 million undernourished people, "social injustice is still dominant…".

ISSN: 1300 – 915X
www.iojpe.org
2014, volume 3, issue 1

Community engagement at UKZN was traditionally conceived of as "an umbrella term to describe social engagement in the areas of clinical service, placement, internship, community-based learning or service learning in a specific discipline and community outreach" (UKZN Community Engagement Conference, 2009, para. 1). It has made some progress from this point of departure. Similar initiatives abound across the country, driven by the commitment from higher education to forge and sustain mutually beneficial interaction with individuals and groups in society, though varying models apply.

In their report on Community Engagement through Higher Education Institutions Governance and Management (a workshop concurrent to the Community Engagement in Higher Education Conference, 2007: 109), Badat and Sattar identify three models of community engagement, where: i) the university has three roles, teaching and learning, research and community engagement but fulfils each independently, mainly through community outreach and student and staff volunteerism; ii) the university has these three roles, but there is some intersection among them, usually involving service-learning, with community outreach and volunteerism remaining separate; iii) the university has two roles, teaching and learning and research, and community engagement informs, animates and is *integrated* with both. Regardless of the varying levels of integration across higher education institutions here, the South African Council on Higher Education (CHE) affirms in 2010 that community engagement ranks alongside teaching and research, as one of three core responsibilities of higher education (Community Engagement in South African Higher Education, 2010, p.iii).

From Interrogation to Integration

The purpose of this paper is not to interrogate these and any other emerging models of community engagement or indeed the theoretical underpinnings for changing conceptualizations of the role of the university. For UKZN, given its vision of community engagement as one of three pillars which mobilize and inform its work, the goal may be to develop ways of not only interrogating but integrating community engagement into teaching, learning and research. Goal Two of the University's current strategic plan is Responsible Community Engagement: "To contribute through knowledge to the prosperity and sustainability of our province, and to nation-building, by connecting with and committing ourselves to the communities we serve in a manner that adds value and earns their respect, admiration and trust" (UKZN Strategic Plan 2007-2016, pp. 8-9). It identifies the following strategies to accomplish this goal:

- Promote and reward community engagement that adds value
- Embed community engagement that adds value in selected niche academic programmes
- Give effect to public/private partnerships, including mutually advantageous, dynamic agreements with local municipalities and government.

What this paper does intend to do is focus on and identify the role of the Advancement Office, which though not directly involved with teaching and learning and research, as nonetheless an effective channel for integrating community engagement, and to highlight some of the key characteristics which make this a successful venture.

THE ROLE OF THE UKZN FOUNDATION OR ADVANCEMENT OFFICE

Community engagement is gaining momentum in the work of the UKZN Foundation (see our website), which has as its core business, philanthropic investment (Advancement, Development and Fundraising). The role of the Foundation is to garner third stream income to fund strategic development projects, in line with the University's institutional development agenda, that would benefit both student and community.

Thus it must cultivate and solicit prospective donors on behalf of the University and its staff, and facilitate and manage all donor interaction, which calls for sustained relationship-building. In essence, this means it is responsible specifically for:

- Co-ordinating fundraising aimed at contributing to the developmental needs and advancing the interests of the University;
- Building the image of the University within the donor community;
- Managing relationships with donors;
- Providing support and advice to members of the University community who engage in fundraising which is related to the core business and strategic goals of the institution;
- Identifying, encouraging and assisting with development of projects and programmes within the University which donors have an interest in supporting;
- Presenting approved projects and programmes to donors and other prospective partners;
- Monitoring and reporting on overall donor income flows into the University, with due attention to tax exemption certificates, fiduciary control and audits (Guidelines for Fundraising for non-research purposes at the University of KwaZulu-Natal, 2010, p. 3).

The assumption underlying these responsibilities is a deep and current interest and involvement in the university's dynamic environment, with a keen awareness of how to further its development agenda, as well as an acute sense of the market, the public and private sector, the economy, giving trends and profiles. While the UKZN Foundation enjoys relationships with a wide range of local and international grant-makers including embassies, trusts, charities, foundations, individual donors and bequests, it seeks to establish partnerships with corporates by matching their giving capacity, interests and trends with University projects and needs, drawing on their policies on:

- Corporate social responsibility (CSR), which incorporates corporate governance, employment equity, environmental management, procurement, and corporate social investment.
- Corporate social investment (CSI) , which refers to a company's contributions (in cash and kind) to organisations and communities external to the company, usually per policy, whether formalized or not.

Social Responsibility and Social Responsiveness

While social responsibility from donors is being activated by Advancement Offices in the country, the challenge is to activate social responsiveness from higher education. Beyond the normal brief of working with the grant-making community, the Foundation asks: How can we partner UKZN with the community to benefit both? Where can we locate the transactional zone which would enable maximum, meaningful exchange, that would work best and benefit both? And, in turn, how can research, teaching and learning take on the responsibility of philanthropic investment as an outcome? We argue that discourse in advancement contexts should increasingly open up to the possibility of enabling community engagement more actively.

The UKZN Foundation seeks to enable community engagement through the following avenues:

- By building a platform for sustainable giving (one of our strategic goals, UKZN Foundation Strategic Plan 2008-2012), via the identification and nurturing of student volunteers from the undergraduate cohort, to inspire among the student body a spirit of philanthropy and long-term

loyalty to the university, thereby promoting a culture of giving amongst them that is sustained throughout a life time.
- By engaging internal and external community through an online presence which invites participation in volunteer projects, covering the spectrum of the development work we do.
- By supporting projects with a strong community development ethos (which I shall elaborate upon shortly).

It is undeniable that at this stage in our growth trajectory, these avenues may still locate the Foundation some distance from the third model of community engagement outlined; furthermore, development across the university is indeed patchy. As noted, the goal for us is to shift from interrogation to integration, while bearing in mind the need for careful selection of projects, internal capacity and resources, and the challenges of implementation, monitoring and sustainability (Fourie, in Community Engagement in Higher Education Conference Proceedings, 2007, p. 41). Two case studies of projects we are supporting exemplify this: Sizabantwana and the Kenneth Gardens Project, the former fourteen years old, the latter a 2011 initiative, which I shall sketch briefly.

THE SIZABANTWANA PROJECT

The Sizabantwana Project (Mitchell, 2010) is an established project of the University of KwaZulu-Natal's School of Psychology in the College of Humanities, Development and Social Sciences. Sizabantwana means 'Helping Children' in *isi*Zulu. The Project began by developing educators in schools so that they could deal more effectively with psycho-social issues in early childhood education, in their school communities. These educators became agents of change in their contexts, and were thus identified as resources by other community members. Educator support groups were established to address the needs of over 36 disadvantaged primary schools in the Pietermaritzburg region, focusing on medical and psychological screening and intervention; enhanced classroom learning experiences, and improved environmental conditions. The Project is intended to:
- Generate a self-sustaining educator training and support intervention (15-20 educators).
- Facilitate communication between the state departments involved in caring for these children (Department of Health, its hospital clinics and Department of Paediatrics at UKZN).
- Capitalise on student capacity by involving students on site in the different aspects of the project, for academic credit (40 medical, psychology, social work, dietetics, education and design students).
- Impact on children who would otherwise be marginalised, overlooked and neglected due to the overwhelming demands on the system (leading to referral and specialised assessment and treatment).

The Project is currently expanding into Sizabantwana-Inkunzi Isematholeni, meaning "The bull is amongst the calves", an indication of the seriousness of the escalating problems faced by pre-school children, who are deprived of facilities, stimulation and resources, leading to bio-psycho-social difficulties that are often ignored (Mitchell, 201, p. 4). The project's focus on African Psychology has also enriched its research standing, as it seeks to address issues on the local and global development agenda "through critically informed and reflective teaching, research and community responsiveness" (Mitchell, 2011, p.1). Sizabantwana has won a number of local and international awards, which "recognize exemplary partnerships between communities and higher educational institutions that build on each other's strengths to improve higher education, civic engagement, and the overall health of communities" (Mitchell, 2011, p. 7).

ISSN: 1300 – 915X
www.iojpe.org
2014, volume 3, issue 1

Funding for this project has been obtained in part by the UKZN Foundation.

KENNETH GARDENS MUNICIPAL ESTATE INTERVENTION PROJECT

The Kenneth Gardens Estate in Umbilo, Durban, is a cluster housing scheme, originally intended for poor, working class whites, and developed by the apartheid government. It is now home to a diverse community with a range of social problems such as unemployment; drug and alcohol abuse; family violence; isolated and neglected elderly residents; apathetic children and young adults with low self-esteem and limited aspirations; safety threats; HIV and other chronic illnesses, and racial and cultural intolerance (Marks & Erwin, 2011, p. 2).

The overall aims of the Kenneth Gardens Municipal Estate Intervention Project include determining the needs of the Kenneth Gardens community and providing a framework for interventions to help meet these needs; making recommendations to local government about a sound development strategy based on empirical evidence; initiating and managing a meaningful outreach program for the Community Development Department at UKZN, and providing UKZN students with practical opportunities to learn various aspects of community development (Marks & Erwin, 2011, p.5). Though led by the Community Development Programme at UKZN, academics from other departments of English Studies, History, the School of Music, Development Studies, Social Work, and the Centre for Critical Research on Race and Identity Studies, are actively involved in this project.

Given the range of needs, a suite of projects is proposed: a Bursary Programme for School leavers; a Food Production Feeding Scheme; an Early Childhood Intervention Programme, a Public Health Programme for Vulnerable Groupings, and a Youth Development Media Project. There are a number of outreach programmes that have already emerged as possibilities: Cultural tolerance and interfaith forums; Producing life history documentaries of residents of Kenneth Gardens; Drug and alcohol intervention; Domestic violence intervention; Built environment projects such as the design of a functional and safe parking area; Structured and resourced cultural and sporting activities for young people; Parenting style discussions forums; Enhancing governance arrangements (within Kenneth Gardens, and in relation to key actors such as local government, ward councilor, NGOs, etc.) and Public health support programmes, particularly with regard to HIV and the elderly (Marks & Erwin, 2011, p. 6).

The projects have an interlinked research component (for e.g. a comprehensive demographic and needs assessment survey) and community outreach component (designing and implementing community outreach programmes that are sustainable and a result of participatory action research processes). These are devised in collaboration with a range of partners, including the tenants, the Kenneth Gardens Residents Association, Ethekweni municipality, Turquoise Harmony Institute (an NGO), the School of Community Development and the UKZN (Marks & Erwin, 2011, pp. 7-8). The Kenneth Gardens Team anticipates that this initiative will become a model for how other similar public housing communities could be assisted to uplift themselves and improve their existing conditions through public-private partnerships and collaboration with tertiary institutions (Marks & Erwin, 2011, p.20).

The UKZN Foundation is currently seeking funding and other support for this project. Its volunteers are participating in project activities already.

ISSN: 1300 – 915X
www.iojpe.org
2014, volume 3, issue 1

KEY FEATURES OF COLLABORATIVE COMMUNITY ENGAGEMENT PROJECTS

What key features stand out in these projects that make them successful examples of community engagement?

- A clear community development focus and rationale, which positions the university in collaboration with community
- A well-managed, collaborative relationship with the University, and specifically, access to its human resources
- Involvement and mobilising of local community, business and government resources
- A cross-disciplinary, collaborative pool of expertise (educators, students, programmes)
- A clearly defined outreach and research component, with the latter intrinsic to the former
- A team of champions
- Identifiable and measurable goals and success indicators

CONCLUSION: FURTHERING COLLABORATIVE EDUCATION

The key word in these features is "collaborative", to the point of merging the agendas of both university and community. Both projects partner the university with community, making for a sharing of resources and expertise, with benefit to both. This gives a different interpretation to "Collaborative Education" as we know it. I'd like to think of collaboration and merging together – of needs, resources, skills, knowledge and ideals - as engagement. The development trajectory of the Foundation is interesting to note as well, from its purely fund-seeking support for Sizabantwana many years ago (2008), to its participatory role now with the recruitment of its volunteers for the Kenneth Gardens Project (alongside fund-raising). Partnering, relationship-building and collaborating, are what characterize the work of the Foundation. Collaborating and merging with community gives new meaning to the Foundation's call for social investment, and to our understanding and practice of community engagement.

REFERENCES

Community Engagement in South African Higher Education. Kagisano No. 6. (2010). Durban: Fishwick Printers.

Community Engagement in Higher Education, Proceedings of the Conference, The Higher Education Quality

Committee of the Council on Higher Education and The Community - Higher Education – Service Partnerships Initiative of Jet Education Services. 3-5 September 2006. Cape Town: CHE AND CHESP.

Guidelines for Fundraising for non-research purposes at the University of KwaZulu-Natal. (2010). Durban: University Publication.

Henry, E. (2011, February 20). February 20 – World Day of Social Justice. Retrieved from www.bwanet.org,

Marks, M., & Erwin, K. (2011). Kenneth Gardens Municipal Estate Intervention Project Proposal. The School of Community Development, University of KwaZulu-Natal.

Mitchell, C. (2010). Sizabantwana Project Proposal. The School of Psychology, University of KwaZulu-Natal.

Mitchell, C. (2011). Sizabantwana – Inkunzi Isematholeni (The bull is amongst the calves) Project Proposal. The School of Psychology, University of KwaZulu-Natal.

University of KwaZulu-Natal Community Engagement Conference Programme. 8-9 October 2009. Kloof, South Africa.

University of KwaZulu-Natal. (2011). Vision, Mission, Goals and Core Values. Retrieved October 18, 2011 from http://www.ukzn.ac.za/About-UKZN/ukzn-Vision-mission.aspx

University of KwaZulu-Natal. (2011). Strategic Plan 2007-2016. Retrieved October 18, 2011 from http://www.ukzn.ac.za/aboutus/strategicplan.pdf

University of KwaZulu-Natal Foundation Trust. (2011). Retrieved September 15, 2011 from http://www.ukznfoundation.org/

IOJPE

ISSN: 1300 – 915X
www.iojpe.org

International Online Journal of Primary Education 2014, volume 3, issue 1

DESIGN STUDIO, COURSEWORK AND COMPLEMENTARY PROJECTS – A TRANSITION FROM THE BASICS TO THE SYNTHESIS OF ARCHITECTURAL DESIGN

Georgică MITRACHE
Ion Mincu" University of Architecture and Urbanism, 18-20 Academiei Str., Bucharest, 010014, Romania
mitracheus@yahoo.com

ABSTRACT
In addition to the practical knowledge imparted during design studio projects, architecture students amass theoretical knowledge in a wide array of subjects via coursework, and complementary, practice-based knowledge regarding urban planning, structures and architectural technology. The aim of this paper is to examine the relationship between the practical and abstract knowledge input of these three aspects of architectural education, using the curriculum of the "Ion Mincu" University of Architecture and Urbanism as a case study. Finally, the paper will propose a few key principles for ensuring the optimum ratio between these educational components.
Keywords: Architecture education, practical exercises, design studio, teaching methods, relfective practice

1. Introduction

Apart from creativity and inspiration, architectural design entails the practical application of abstract knowledge according to a complex set of context-related, co-determinant factors. At an educational level, the context of studio projects (part of the project theme) has a crucial role to play as a didactic tool. During the first couple of years, it has a higher degree of abstraction – meaning that it functions as a controlled medium with pre-defined, cohesive, non-restrictive characteristics. As the students amass theoretical knowledge in a wide array of subjects via coursework, and complementary, practice-based knowledge regarding urban planning, structures and architectural technology, the context evolves towards the complexity of real-life situations. While it stands to reason that the activities of design studio, theoretical disciplines and complementary projects should constantly inform each other, the pace and volume of this knowledge transfer can be difficult to adjust. Too many parallel courses and projects can lead to an unmanageable workload for the students. Too little – or too late - and their education will be riddled with information gaps and destabilized by underdeveloped skills. The relationship between these three educational aspects is vital to the efficacy and success of any architecture school, regardless of the model they follow – studio-based or polytechnic. In addition to relationship characteristics, special attention should also be given to the transfer of abstract and practical knowledge between these three components.

2. The IMUAU Curriculum

In Romania, an architecture student's education spans six years. The length and type of our architecture education system stems from a synthesis between classical architecture

education (dating back to 1892, when the school was founded) and the contemporary architecture education standards upheld and promoted by international organizations such as the UIA-UNESCO, EAAE, ACE, RIBA, and in schools across the world.

2.1. Structure

Comprising a licence – or B. Arch. – and an integrated Master's degree, the program is structured into two major design cycles: the Basics of architectural design (2nd and 3rd years of study) and the Synthesis of architectural design (years 4 and 5). In this configuration, the 1st and 6th years have a more atypical affiliation to the main cycles, meaning that they are subsumed to the Basics and the Synthesis structures, respectively, but are organized according to specific schemes, as befits the introductory and concluding years of the educational route. Thus, the 1st year makes up the Introduction to architectural design, while the 6th – the diploma year – calls on resources from across all faculties and departments, and is characterized by an interdisciplinary organization. The Faculty of Architecture consists of several specialized departments, each in charge of one aspect of architectural education: the design cycles are run by the *Introduction, Basics and Synthesis of design* departments, while theoretical courses and complementary projects are overseen by the *History & theory of architecture and Patrimony conservation, Technical sciences, Shape study and ambient, Interior design, Urban planning and regional development, Urban and landscape design.* Architectural education at the "Ion Mincu" University of Architecture and Urbanism is based on a design studio model of Beaux-Arts lineage (constantly updated to contemporary standards), with design studio hours and projects making up the bulk of the curriculum in both time and content. For a well-rounded program, design studio activities are complemented by theoretical courses (usually about 7 per semester), and speciality projects ranging from urban and landscape planning to architectural technologies and furniture design. In addition, about a third of all courses comprise both lectures and seminars, with the latter being a key component in linking theory with practice, since they mostly involve studio work and short projects meant to sediment theoretical notions through practical examples.

2.2. A design-centred education – relationships with the other disciplines

All three aspects of the curriculum – design studio, coursework and complementary projects are interconnected and interspersed across the six years of study according to a carefully developed educational strategy. The end result is a comprehensive architectural education attuned to contemporary values and requirements on all societal levels, adaptable to the fluctuations of the professional market, encouraging creativity and innovation but also anchored in local identity and sensitive to the specificities of our traditions, conscientious of environmental problems and dedicated to their resolution, and up to date and involved in the swift evolution of information technologies, building technologies and materials.

In the studio-based educational model, the knowledge imparted through theoretical disciplines and speciality projects comes to supplement that gained through the practice of architecture during studio hours, under tutor supervision. Even though they feature in the curriculum in different ratios, coursework, complementary projects and the design studio are to architectural education what voussoirs, mortar and scaffolding are to an arch. Without the frame of the scaffolding – generating structure and order – the voussoirs are simply disparate elements, and the scaffolding alone is only the unsubstantiated prefiguration of an intended object. The mortar adds strength, and binds disparate elements into one cohesive shape. In a nutshell, the relationships between these three elements are co-dependent and co-determinant. If the design studio can no longer supply a complete architecture education, as it once did, coursework and side projects provide the missing knowledge and experience which are, in turn, structured and integrated during studio hours in order to progress to the next level.

The figure above is an overview of design studio activities at IMUAU, structured according to cycles and years of study, and including general design modules and themes. To the left and right of the studio projects column are the theoretical courses and complementary projects which directly inform studio activities. Apart from the studio projects column, the table is not exhaustive. Naturally, all the courses featured in the curriculum are an integral part of a future architect's education, but I have selected those with a bigger role to play in the development of design competencies.

Looking at the table, there is an obvious counterbalance between courses and complementary projects. During the Basics cycle, the focus in on coursework, with up to 5-6 courses bringing crucial knowledge to design activities during a single semester, especially during the second semesters of years 2 and 3. At this time, there are no complementary projects other than practical exercises tailored to expand the focus of the design studio and stimulate in students certain design abilities necessary for progression to the next year of study. During the Synthesis cycle, there is a gradual decrease in immediately applicable coursework, and a marked increase in speciality projects (urban planning, structures, architectural technology, restoration, etc.), all integrated into the main frame of the studio projects. For example, the sports hall project (1st semester of the 5th year) entails a detailed urban plan during the first phase, and detailing regarding architectural technologies (advanced structures, materials, HVAC, etc.) during the second. Indispensable abstract knowledge – which could not be imparted during design studio hours due to time constraints and extreme specialization in the field of architecture – is contributed, during the same semester, by the *Advanced structures* and *Complex design* courses. The Synthesis cycle is also characterized by a decrease in courses requiring seminar work. In general, the students are experienced enough during their 4th and 5th years, and have developed sufficient analytical, critical and synthesis skills to integrate knowledge gained during courses in their design work. The time thus saved can be allotted

IOJPE
ISSN: 1300 – 915X
www.iojpe.org
International Online Journal of Primary Education 2014, volume 3, issue 1

to increasingly complex speciality projects with themes connected to those of the main studio projects.

		courses			STUDIO PROJECTS				complementary projects		
		urbanism	arch.hist.&theory	technical	description	keywords	specif. theme	specif. site	urbanism	arch.hist.&theory	technical
INTRODUCTORY YEAR 1	SEM.1	-	introduction to contemporary architecture	basic structural principles	survey - traditional homesteads	object / representation	●	●	-	-	-
					covered, sheltered space	structure / material	●	○ fictitious			
					exhibition pavilion	structure / space / structured plan	●	○ fictitious	other practical studio activities: study of shapes, descriptive geometry, urban context analysis		
	SEM.2	-	architectural language 1	construction materials resistance of materials	single-family dwelling	structure / space / free plan	●	○ fictitious	-	-	-
					artist's dwelling with workshop (1)	structure / space free / structured plan	●	○ fictitious			
					artist's dwelling with workshop (2)	materialization	●	○ fictitious			
BASICS OF ARCH. DESIGN YEAR 2	SEM.3	environment and urban planning	architectural language 2	wood&steel constructions basic wood & steel structures	art gallery / museum / thematic pavilion	structure / space expression	◐ studio specific	◐ studio specific	-	-	-
					terraced houses	dwelling typologies / domestic space	●	●	other practical studio activities: study of shapes, perspective, CAAD, analysis of arch. objects		
	SEM.4	morpho-typological urban analysis	history of modern architecture architecture/ dwelling/city	masonry & reinf. concrete struct. masonry & reinf. concrete constr.	small-scale public space	public space as social space	◐ studio specific	◐ studio specific	-	-	-
					detached single-family dwelling	dwelling typologies / domestic space	●	●			
BASICS OF ARCH. DESIGN YEAR 3	SEM.5	-	architecture/con-text/landscape furniture	masonry & reinf. concrete struct. finishings 1	bed&breakfast - seaside, countryside / mountains	tourism, leisure	◐ studio specific	◐ studio specific	residential neighbourhood (urban planning project)	furniture design project	-
					kindergarten	education	◐ studio specific	◐ studio specific	other practical studio activities: construction site visits		
	SEM.6	urban planning techniques urban doctrines	visual communication	structural design finishings 2 hvac equipment design	urban project for low-rise collective housing (1)	dwelling typologies / private space / public space / collective space	●	●	-	-	-
					low-rise collective housing (2)						
SYNTHESIS OF ARCH. DESIGN YEAR 4	SEM.7	urban structures	architecture of interior spaces modern/contemp. arch. in Romania	structural engineering 1 physics of constructions 1	short themed project	private space / public space urban / natural spatial context; complex programs; structural concept	◐ studio specific	◐ studio specific	zoning (urban planning project)	-	architectural technology project
					urban project for 3-4 star hotel (1)		●	●	other practical studio activities: historical monuments tour + documentation		
					urban 3-4 star hotel (2)						
	SEM.8	landscape design	built patrimony protection concept-language-discourse	structural engineering 2 physics of constructions 2	urban project for coll. housing in protected sites (1)	interventions in urban contexts with strong identities; arch. & environ-ment / eco-technologies	◐ studio specific	◐ studio specific	-	historical monument restoration project	architectural technology project
					collective housing in protected sites (2)		●	◐ studio specific			
SYNTHESIS OF ARCH. DESIGN YEAR 5	SEM.9	urban management	-	complex design cutting-edge structures	short themed project	structural technologies; structural performance and architectural expression; complex programs;	◐ studio specific	◐ studio specific	landscape design project	-	architectural technology project
					urban project for sports hall, highrise off bldg.etc		◐ studio specific	◐ studio specific	other practical studio activities: advanced survey techniques		
					sports hall, highrise off. bldg or int. fair complex						
	SEM.10	urban composition urban law	aesthetics	-	urban project for theatre, museum, gallery or library (1)	interventions in historical sites conversion, restoration, rehabilitation; science, arts, culture;	◐ studio specific	◐ studio specific	complementary project - student's choice (urbanism, restoration, architectural techniques, etc)		
					theatre, museum, gallery or library (2)		●	◐ studio specific			
	Y.6 S.11 &12	possible site selection/study		-	DIPLOMA PROJECT - 2 PHASES		■	■ student's choice	urban planning consulting	hist.monum. expertise/support	techn. / struct. hvac consulting

NOTE: the table lists only mandatory courses with direct bearing on design studio projects;

3. From Basics to Synthesis – the transition between educational cycles

The two cycles are different in structure, goals and scope, and one of the most delicate operations in updating the curriculum is ensuring a smooth transition from one cycle to the next. If the content and requirements become more complex from one cycle to the next, their structure remains the same: studio projects (between 1-3 per semester), sketch projects and practical exercises.

3.1. Evolution of context and content

As previously mentioned, the introductory year is a prelude to the *Basics of architectural design*, and familiarizes students with the basic elements of architecture – shapes, materials, textures, volumes, spaces, functions – and the language of architectural representation. During this time, the context of studio projects is a rather abstract, controlled medium, whose pre-defined, cohesive and non-restrictive characteristics allow students to manipulate shapes and spaces with as much unhindered creativity as possible. Years 2 and 3 of the *Basics of architectural design* cycle introduce real sites and contexts with a balanced blend of natural, urban, cultural and socio-economic requirements. In addition, the design goals extend to a comprehensive approach to architecture as a complex art form, mediating between the conceptual / artistic and the functional, working within the logic of a compositional system.

The 4th and 5th years of the *Synthesis of architectural design* cycle represent the final formative years preceding the 6th year diploma project. In preparation for real life practice, this cycle is focused on complex design grounded in extensive knowledge of the cultural, social, economic, managerial and technical aspects of architecture. Project sites and themes are not only real, but also moderately to highly problematic, requiring students to apply the aforementioned knowledge in a comprehensive, synthetic approach to design. The Synthesis cycle strives to simulate real practice conditions as closely as possible, addressing complex architectural programs (sports halls, high-rise office buildings, theatres, museums, etc.) and providing a multi-disciplinary tutoring team to guide students through all stages from urban and architectural concept to feasible detail design and choice of finishings.

3.2. Knowledge transfer and integrated design

Naturally, the progression from the Basics to the Synthesis cycle depends on the quality (and quantity) of the theoretical knowledge amassed and structured via coursework, and on the ability of complementary projects to address the knowledge gaps between coursework and studio by integrating the two types of knowledge: abstract and practical. As illustrated by the table presented above, there are three main areas of expertise which must complement practical knowledge: urban studies, history and theory of architecture, and

technical sciences. It should be noted that knowledge transfers in this system are by no means unidirectional; while a higher (and more diverse) quantity of knowledge issued from courses infuses design activities, the influx of knowledge on the same subjects acquired during studio critiques is by no means negligible, although oftentimes unsystematic. During the first three years, integration of the two types of knowledge often happens in the design studio, where the student's attempts to do so are overseen, encouraged and, where necessary, corrected by the tutor. By their 4th and 5th years, having developed the necessary critical skills to complement their practical training with theoretical knowledge, the students are guided only in applying enough of this compound knowledge in particular areas of their design work. At this stage, *integrated design* is the main goal: projects unite compulsory, interconnected components from many aspects of urban and architectural design (urban planning, historical studies, structures, HVAC, finishings, etc.) in one complex design process. These components are, in fact, the mandatory speciality projects previously described, and their direct application within unfolding studio projects has proved beneficial to the education process at IMUAU.

4. Excessive workload vs. incomplete education – a delicate balance

Some of the often neglected difficulties of this educational strategy lie in balancing the students' workload and the rigours of a complete architectural education. Given that studio activities alone take up around 50% of the total number of permissible study hours, an excess of parallel courses and complementary projects could prove unmanageable, to the detriment of the students' health and enjoyment of their undergraduate education. A deficit of theoretical courses – or an unsound placement in the curriculum – can lead to information gaps and even underdeveloped skills. Much like other artistic and unformulaic disciplines, architecture education is time consuming. After the long hours spent at school, the students must continue their work at home in order to achieve the best results. Poorly scheduled, design work requirements and seminar requirements from theoretical disciplines vie for the same timeslots in the students' very busy day, and the quality of the work is bound to suffer. A better integration of speciality projects into core design studio projects is a step in the right direction, but the situation could be further improved by doing the same with some of the seminars as early as the 2nd year of study.

5. Conclusions - in search of the optimum ratio between design studio, coursework and speciality projects

In conclusion, the key to finding an optimum ration between these three aspects of architectural education is *integration.* All three are equally important, but it obvious that, in a school applying the studio model – and giving precedence to apprenticeship of the profession by simulating practice – an equal ratio between these elements is detrimental.

This problem can be solved through a careful selection of relevant coursework, their distribution at key points of the main design studio curriculum, and connecting the two with complementary projects.

References

Bunch, M. (1993). *Core Curriculum in Architectural Education*, San Francisco: Melen Research University Press.
Harder E., (ed.) (2005) *EAAE Prize – writings in architectural education 2003-2005. From & co.*
Nicol, Pilling, (eds.) (2000). *Changing architectural education.* Wilkin, M Reviewing the review. London: Taylor & Francis Publications.
Figures: © Georgica Mitrache – personal archive

IOJPE

ISSN: 1300 – 915X
www.iojpe.org

International Online Journal of Primary Education 2014, volume 3, issue 1

THE EFFECT OF MUSIC ASSISTED INSTRUCTION ON EXAM SCORES FROM TRIANGLES IN GEOMETRY LESSON

Assoc. Prof. Dr. Cenk KEŞAN
Dokuz Eylül University, Faculty of Education, İzmir, 35380, Turkey
cenk.kesan@deu.edu.tr

Deniz KAYA
Dokuz Eylül University, Faculty of Education, İzmir, 35380, Turkey
denizkaya50@yahoo.com

Mustafa Zeki AYDOĞDU
Dokuz Eylül University, Faculty of Education, İzmir, 35380, Turkey
mustafazeki20@hotmail.com

ABSTRACT
In this study, the effect music assisted instruction on students' exam scores taken from triangle subject was investigated. The research was made with 177 of the freshmen from 4 different classes in Buca Faculty of Education, and the department of Elementary Mathematics Teaching in 2011-2012 in fall semester. In this study, experimental model with pre-and post-test control group was used. For this purpose, two experimental and two control group were formed. Music assisted instruction by making one of the experimental groups listen to Classical Music and one listen to Turkish Art Music just before presenting the triangles in geometry class during five weeks and non assisted instruction were applied to the control groups in presenting triangles in geometry lesson. "The achievement test of triangles" was used as data collection tool. As a result of the research, it was determined that music assisted instruction was effective on student success in triangles comparing to traditional instruction; however, no significant difference was found between experimental groups listened to Classical and Turkish Art music.
Keywords: Geometry, triangles, music instruction, test score

1. Introduction

The twentieth and twenty-first centuries have an important role in many developments in science. Because it is a quite busy period when interdisciplinary studies took place (Yener, 2004). These centuries have made the formation of information society inevitable. This is the society which was driven by highly talented, well developed brains based on thought. Thus, the questions how the brain develops, what are the mechanisms that trigger it, why some brains are developed more, which skills develop the brain and create some structural differences and etc. have emerged. Naturally, the researches on this issue are made on the fields where special and different skills are used together and the people being active in these fields. Because the music is one of few activities using many functions of the brain together, it became many researchers' focus from the past to present in terms of perception in the brain, creation and interpretation (Zatorre, 2005). There are also different reasons of music's attracting such a great attraction, arousing curiosity, and being investigated. For example, making music includes evolutionary functions such as communication, group coordination and social cohesion. At the same time, it is a task launching nearly all mental functions of the brain such as perception, action, emotion, memory. That wealth made the music an ideal tool to investigate the brain's functioning (Ayata and Aşkın, 2008).

Music just like chess or mathematics is an endeavor requiring higher brain functions. These areas also lay the foundation of well developed "spatial" intelligence (Rauscher, 1993). Spatial intelligence is the skills of perceiving the visual world, creating images in the mind, and comprehending their differences (Boettcher and et al., 1994). Collating Geometry requiring the spatial intelligence whose relationship is maybe the strongest among the branches of mathematics with the music creating the basis of well developed spatial intelligence may give a different direction to mathematics teaching. Music may help

students in answering the questions correctly in geometry class by triggering the students' spatial intelligence, and facilitating their spatial thinking. Blending the music and geometry may turn them, whose basis are that similar to each other, into two pieces complementing a whole. World nations already believed educational role of the music, looked at and gave importance to it as an educational tool (Ayata and Aşkın, 2008). The results of several studies have revealed that there is a relationship between the fields of mathematics and music. They generally focus on the effect of the music on learning the concepts related to mathematics, mathematical thinking, and developing the judge (Göğüş, 2008).

According to Shaw (2003) music has positive effect on learning especially mathematical and some abstract concepts. In a study conducted in Australia in 1996, pre-school children were given music education for an hour per a week during 10 months. The effect of given education on math skills was examined. The children's math skills were evaluated via Test of Early Mathematics Ability. As a result, higher results were obtained from the group getting music education (Geoghegan and Mitchelmore, 1996). As it is seen, the studies made from the past to present provided a new perspective to the relationship between music and mathematics by showing the effect of music on mathematics. These studies, by shedding the following researches, may give a different direction to mathematics education; make the music sought-after item in mathematics education. In this study, by making the students listen to Classical and Turkish Art Music before presenting the triangles, it was tried to determine how the music affected the achievement of the students.

2. Method

In the study, quasi-experimental design with pretest-posttest experimental-control group was used. Experimental design was defined as research design used to discover the cause-effect relationship among the variables (Büyüköztürk, 2007). The aim of the quasi-experimental design is the same as experimental pattern's. The difference is selecting the experimental groups via measurements rather than by coincidence in semi experimental pattern (Ekiz, 2003; Karasar, 2006). In this study, non-random assignment in selecting the experiment and control groups, and being equal of the groups' pre-tests in terms of exam scores which is the dependent variable have been checked.

2.1. Data gathering and application

The research was made with 177 of the freshmen from 4 different classes in Buca Faculty of Education, and the department of Elementary Mathematics Teaching in 2011-2012 in fall semester. The study groups were divided into 4 groups as 2 experimental and 2 control groups. There are 89 students in experimental group, and 88 students in control group. 45 of 89 students in experimental group are in the group listening to Classical music, and 44 of them are in the group listening to Turkish Art music.

This study was carried out within a 5 week application by the researchers. The achievement test was given as a pre-test to examine if there was a significant difference between experimental and control groups before the application, in order to compare the achievements it was given as a post-test after the application. In the study, the traditional teaching methods were used in control group. The subject was presented traditionally, and drawn on the board with diagrams. The course was processed within lectures, asking question, and discussing. Operating time was same as in experimental group. In experimental group, music assisted instruction was used by making the students listen to Classical

Music in one group and Turkish Art Music in the other one for 15 minutes before presenting the triangles.

2.1.1. Data collecting tool and analysis

In the study, a 30 question "achievement test with triangles" was used as data collecting tool. The value of each question in the test was determined as 1. In this case, the highest possible score is 30. The achievement test was prepared from the questions in test books by the researchers. In order to ensure the reliability of the questions created with the necessary permission, the application made with 782 students and the reliability coefficient was found as .92. Correlation's being close to 1.00 means that the test is reliable (Tarman, 2002). The data obtained from the research was interpreted with "t" test analysis at 0.05 significance level. SPSS 15.0 (Statistical Package for the Social Science) on computer was used for this.

3. Findings

Table 1. The students' pretest t-test results in experimental and control groups

Groups	N	X	S	t	P (significance level)
Control Group	88	16,43	7,44	.473	.637
Experimental Group	89	15,93	6,56		

As shown in table 1, when we look at the t-test analysis made depending on the pre-test results of control and experimental groups; No significant difference was found between the groups where music assisted instruction and traditional method were use (t =.473, p=.637>0.05). This result shows that the groups of students' pre-information about the subject are close to each other at the beginning.

Table 2. The result of pretest t-test of exam scores applied with Classical and Turkish Art Music in experimental groups

Groups	N	X	S	t	P (significance level)
The Group Listening to Classical Music	45	16,24	7,34	.451	.653
The Group Listening to Turkish Art Music	44	15,61	5,72		

As shown in table 2, when we look at the t-test analysis made depending on the pre-test results of experimental groups listening to Classical Turkish Art Music; No significant difference was found among the groups where music assisted instruction will be used before the instruction (t =.451, p=.653>0.05). This result shows that the groups of students' pre-information about the subject is close to each other at the beginning

Table 3. The students' posttest t-test results in experimental and control groups

Groups	N	X	S	t	P (significance level)
Control Group	88	19,37	5,32	-6,114	.000
Experimental Group	89	23,84	4,35		

As shown in table 3, at the end of the t-test analysis results made depending on posttest results, a significant difference was found between the groups where music assisted instruction and traditional

method was used (t= -6,114, p =0,000< 0.05). As a result, it was come out that there was a significant difference between the achievement levels of experimental group educated with music assisted instruction and control group education with traditional method in favor of experimental group.

Table 4. The result of posttest t-test of exam scores applied with Classical and Turkish Art Music in experimental groups

Groups	N	X	S	t	P (significance level)
The Group Listening to Classical Music	45	23,91	4,25	.149	.882
The Group Listening to Turkish Art Music	44	23,77	4,50		

When table 4 was analyzed, no significant difference was found between experimental groups listening to Classical and Turkish Art Music according to the t-test result (t =.149, p=.882>0.05). This result shows that the type of the music does not have any effect on the students' exam scores. However, this situation reveals the student's success depending on Classical and Turkish Art Music. This situation may vary when exposed to different types of music.

4. Discussion and Suggestions

According to the research findings, a significant difference were found between the exams scores of the students educated with music assisted instruction and traditional method. The average exam score of the students educated with music assisted instruction is higher when compared to the average score of the students exposed to traditional method. It is thought that listening to music types for relaxing especially during the breaks in educational environment; while spending free time would help in increasing efficiency and motivation (Sezer, 2011). On the other hand, in terms of triangles, no significant difference was found when compared the exam scores of the groups listening to Classical and Turkish Art Music. So, the effect of two types of music in the students' test scores was the same extent. However, it was seen that the music type chosen had an positive effect on student group at the end of the study. According to this finding, it is thought that Classical and Turkish Art Music that had a positive effect on especially psychological symptoms might help (Sezer, 2011) in increasing the students' success and motivation at triangles. In the light of the results of this study, following recommendations are presented.

- The students' listening to Classical and Turkish Art Music may help in understanding the course better before teaching triangles a sub learning area of Geometry.
- Music may be used as a supportive method of learning the triangles in educational environment. Scanning studies may be made by taking the students' opinion about this issue.
- It may be recommended to make some other researches by using different music types than Classical and Turkish Art Music before presenting the triangles a sublearning area of Geometry.
- The effect of music on the other subfields of mathematics like triangles related to spatial intelligence.

References

Ayata, E., Aşkın, C. (2008). The Effect of Music on Cognitive Function of the Brain. *Journal of Istanbul Technical University,* 5(2),13-22.

Boettcher, W. S., Hahn, S. S., Shaw, G. L. (1994). Mathematics and Music: A Search for Insight into Higher Brain Function, *Leonardo Music Journal*, 4, 53-58.

Büyüköztürk, S. (2007). Data Analysis Manual for the Social Sciences (8. Edition). Ankara: PegemA. Publishing.

Ekiz, D. (2003). Introduction to Research Procedure and Methods in Education: Qualitative, Quantitative, and Critical Theory Methodologies (1.Edition). Ankara: Anı Publishing.

Geoghegan, N., Mitchelmore, M. (1996). Possible effects of early childhood music on mathematical achievement. *Australian Research in Early Childhood*, 1, 57-64.

Göğüş, G. (2008). Relationship between musical and mathematical learning success. Journal of Faculty of Education *XXI (1),* 79-89.

Karasar, N. (2006). Scientific Research Methods, Concepts, Principles, Techniques, (16.Edition). Ankara: Nobel Publishing.

Rauscher, F. H. (2003). *Can Music Instruction Affect Children's Cognitive Development?. ERIC Clearinghouse on Early Education and Parenting (September).* [Online]: Retrieved on 21 July-2012, at URL: http://www.ericdigests.org/2004-3/cognitive.html

Sezer, F. (2011). Effect of music on anger and Psychological Symptoms. *International Journal of Human Sciences volume 8 (1), 1472-1493.* [Online]: Retrieved on 21 July-2012, at URL: http://www.InsanBilimleri.com

Shaw, G. L. (2003). *Keeping Mozart in Mind* M.I.N.D.Institute. Published (September) [Online]: Retrieved on 22 March 2012, at URL: http://www.mindresearch.net/

Tarman, S. (2002). "Introduction The Investigation and Evaluation of Reliability and Validity of Music Talent Exams." *Unpublished PhD Thesis.* Gazi University, Institute of Education Sciences, Ankara.

Yener, S. (2004). DNA Passwords and Genetic Music. *Ataturk University, Journal of the Institute of Social Sciences,* 3 (1), 97-102.

Zatorre, R. (2005). Music the food of neuroscience? *Nature,* 434, 7031; Pro-Quest Science Journals.

IOJPE
ISSN: 1300 – 915X
www.iojpe.org
International Online Journal of Primary Education
2014, volume 3, issue 1

A STUDY ON THE EFFECTIVENESS OF HANDS-ON EXPERIMENTS IN LEARNING SCIENCE AMONG YEAR 4 STUDENTS

Senior Lecturer Saroja Dhanapal
Taylors Business School
Taylors University, Malaysia
saroja.dhanapal@taylors.edu.my

Evelyn Wan Zi Shan
Fairview International School
(Wangsa Maju Campus), Malaysia
evelyn.tt@fairview.edu.my

ABSTRACT
This study employed a mixed method, comprising of qualitative and quantitative research methods to examine the effectiveness of hands-on experiments in learning Science among twenty two Year 4 students in an international school. The study focused on two important areas which are to evaluate the students' academic development and to identify students' intrinsic motivation to learnScience when the subject is taught using hands-on experiments. The findings indicated that a number of students obtained better results as they learnt and remembered better through hands-on experiments. There was generally a higher level of participation and intrinsic motivation shown in the students when they learnt through hands-on experiments. The researchers are of the opinion that Kolb's experiential theory is very effective when doing the hands-on experiments for it ensures students grasp knowledge taught effectively. It is recommended that further studies on Bruner's theory of instruction should be carried out to further enhance the effectiveness of learning Science.
Keywords: hands-on experiment, intrinsic motivation and Kolb's Experiential Theory

INTRODUCTION

Science is an important subject for students at all levels. The main reason is because the knowledge, understanding and skills that learners obtain in this subject encourages them to utilize and contribute their ideas in technological change to provide a better future (Jones and Wyse, 2004). Science is a natural subject for hands-on kinesthetic learning experiences that appeal to the visual and auditory senses. There are several factors that have led the researchers to look into the effectiveness of hands-on experiments in learning Science. Hands-on experiment is an active process of student-centered learning whereby it encourages children to discover and develop new concepts or ideas followed by spurring children's mind to be critical and creative (Jones and Wyse, 2004; Wilson, 2008). As children independently think critically and work through a subject matter, they develop a sense of independence and autonomy which will 'enhance their desire and ability to be self-motivated' (Blandford and Knowles, 2009: 147). Many researchers have successfully proven that this method of learning develops the students' interest in learning Science as well as other subjects (Norman, 2005).

However, in reality very few Science lessons are taught using student-centered approaches such as 'hands-on experiments'. Most lessons are conducted based on teacher-centered approach. One of the reasons is because of the teachers' beliefs and experiences in school which have influenced them in a way to practice this approach (Jones and Wyse, 2004). According to Woolnough (1994), although, it is satisfying to see the high achievements of students when the teacher-centered approach is used in schools, nevertheless, students' emotional interest in learning should also be taken into account as it is fundamental to boost their intrinsic motivation, their commitment, their enjoyment and creativity in science. As a result, the researchers were drawn to carry out this study to explore the impact of hands-on experiments in Science lessonsusing Kolb's experiential theory.Two questions were developed in order to fulfill the purposes of

this study. Firstly, to evaluate whether hands-on experiments increase students' motivation in learning Science and secondly to investigate whether students learn better through hands-on experiments.

Literature Review

According to Carin and Bass, 'there are three major ways for people to learn about the world; discover things about the world from personal observations and experiences with the environment, acquire knowledge transmitted directly from other people or construct personal knowledge by transforming discovered and acquired knowledge in meaningful ways' (2001:74).Kolb agrees to the above statement mentioning that 'knowledge results from the combination of grasping and transforming experience' (1984:41). Worth (2010) affirms that learning Science is more than just gaining the facts and understanding on the particular topic. This is where learning science through hands-on experiments becomes acceptable as an effective option as it encourages students to experience and discover from observation or feelings. This will lead to the development of students' problem solving skills, creativity skills and independent learning skills (Shymansky et al., 1990).The three main ways of learning highlighted by Carin and Bass (2001) can be performed through hands-on experiments using Kolb's theory. 'The theory presents a way of structuring and sequencing the curriculum and indicates, in particularly, how a session or entire course may be taught to improve student learning' (Healey and Jenkins, 2000: 185). The diagram below shows Kolb's experiential learning cycle that was developed based on Lewin's social psychology, Dewey's philosophical pragmatism and Piaget's cognitive-development genetic epistemology (Kolb, 1984).

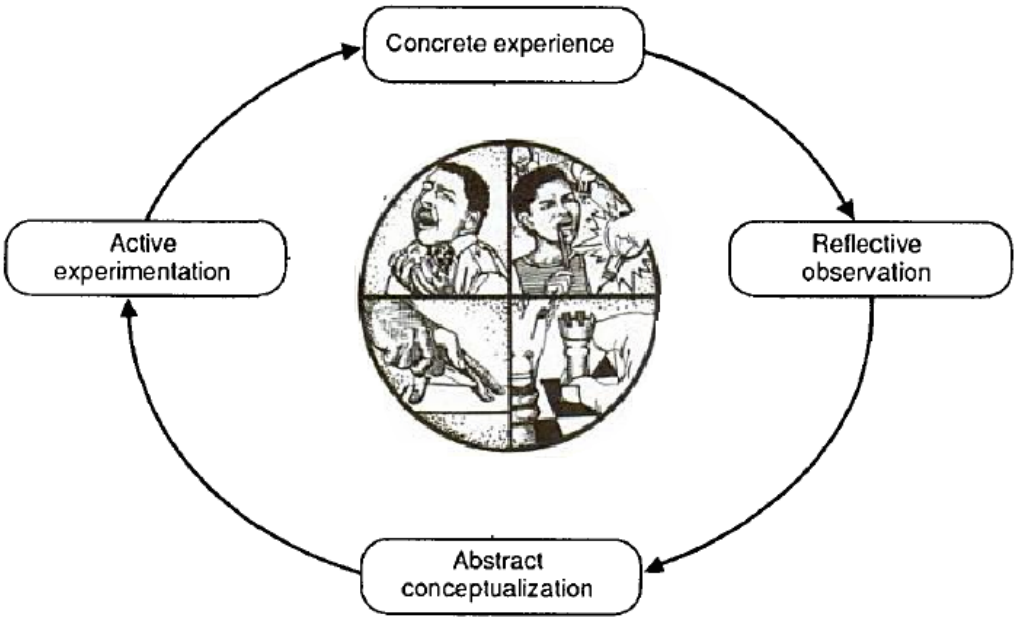

Figure 1: Kolb's Experiential Learning Cycle (Kolb, 1984)

The model portrays two dialectically related modes of grasping experience: Concrete Experience (CE) through feeling and Abstract Conceptualization (AC) through thinking (Kolb et al., 1999). It also represents two dialectically related modes of transforming experience: Reflective Observation (RO) by watching the happenings and Active Experimentation (AE) by doing research (Kolb et al., 1999). Cowan

(1998) suggests that learning is cyclic, involving four different stages that are associated with different learning styles. It caters to all learning styles consisting of kinesthetic, visual, read/write and audio learners which will allow students to learn in their best ways (FAA, 2009) and help them to be more flexible in meeting the varied demands of learning situations (Gibbs, 1988).

Many researchers have shown positive results in the development of learners when they are taught through hands-on experiments for it is 'a process whereby concepts are derived from and continuously modified by experiences' (Kolb, 1984: 26). Norman (2005) states that the results of a majority of researches have shown that students have more interest in Science and other subjects due to being taught using this method. Besides, hands-on experiments can create excitement among students as they develop their interest in learning Science (Andersen and Vandehey, 2012). Eventually, students' intrinsic motivation is build which will encourage them to take their own initiative to learn more about Science. Interestingly, Allen (1973) also found that students' discipline and behavior improved tremendously in Science classes when teachers employed hands-on experiments. On top of that, Jindrich (1998) has demonstrated that people (both children and adults) recall things better when they learn by doing.

However, very few teachers carry out hands-on experiments in their Science lessons. One of the reasons is because in the past, 'the textbook was the curriculum for science and hence what passed as the teaching of science was nothing more than information-giving by teachers and memorization of the information by students' (Collison and Aidoo-Taylor, 1990 cited in Ghartey-Ampiah, et. al, 2004: 2). 'The theoretical approach to teaching science was further encouraged by the emphasis it received in public examinations' (Ajeyalemi, 1990 cited in Ghartey-Ampiah, et. al, 2004: 2). These have led to some of the teachers' beliefs in teacher-centered approach when delivering Science lessons based on their experiences in school (Jones and Wyse, 2004). One of the teachers interviewed by Jones and Wyse stated that 'as a Year 6 teacher, (his) primary concern when teaching science was to ensure that the children had enough information…to be able to tackle a variety of Key Stage 2 SATs questions and he claimed that he had achievedthat (2004:51). Besides that, the emphasis of practical works was minimal due to theirdisbelief in practical Science to convey the large amount of information that the children are required to learn (Jones and Wyse, 2004).

It must be accepted that there are several barriers to implementing hands-on experiments in classrooms. On one hand, in conducting an experiment, learners would construct their own ideas by interpreting what they hear, read and see but on the other hand, students requiring more guidance find difficulties in interpreting the experiment (Thanasoulas, 2001). In addition to the challenge faced by teachers in ensuring proper understanding among students, many research studies have also highlighted the necessity for teachers who are teaching Science to primary school students through hands-on experiments to possess specific and adequate training (Allen, 1973; Klahr et al., 1999). This is important so that teachers are aware of the safety precautions in conducting an experiment, are prepared in handling the classroom and are familiar with the correct ways to handle the materials and apparatus. The materials and resources used during the hands-on experiments too must be appropriate and taken care of in order to avoid unnecessary incidentstaking place during lessons (Ghazaria, 2008). Thus it can be said that there are still gaps in this area, and further investigation should be done.

Methodology

A mixed method comprising of qualitative and quantitative research methods was employed in this study to identify the effectiveness of the hands-on experiment approach in Science lessons. A mixed method was chosen due to its

ISSN: 1300 – 915X
www.iojpe.org
2014, volume 3, issue 1

> …ability to provide a more thorough understanding of a research problem because of the opportunity to examine multiple forms of data…as well as…to answer complex research questions that cannot be addressed through the use of quantitative or qualitative methods alone.
>
> (James and McMillan, 2008: 310)

For example, evidence gathered from surveys might only help the researchers to identify the effectiveness of hands-on experiments in measurement, but it may not be adequate to allow the researchers to understand the process and the challenges faced by the teacher. Thus, classroom observation enabled the researchers to understand the entire process in detail. Further, Gorardclaims that the mixed methods research is acknowledged as the 'key element in the improvement of social science, including educational research' whereby the research is strengthened by the use of various methods (2004: 7).

In this study, the researchers did classroom observation besides getting teachers to fill up reflection forms. Two lessons on the topic 'Air', conducted by a Science teacher in Year 4 classroom were observed. The classroom observation was done to obtain a deeper understanding on the teaching approach used in the classroom. Recording was done of both Science lessons, with and without the implementation of hands-on experiments. In terms of quantitative research, a pre and post test was conducted to evaluate the impact of hands-on experiments. In order to obtain more reliable and valid results, a survey questionnaire was distributed to the students.A triangulation approach was used to confirm and verify data gathered in the different ways. 'Triangulation refers to the use of several different research techniques in the same study' (McMurray et al., 2004: 263). Thus,the classroom observation, the reflection forms, survey questionnaireand students' results in the pre and post tests were utilized to investigate whether students learn better with hands-on experiments approach. Further the data collected were also used to explore whether the approach had any impact on the development of students' interest, enjoyment and self-motivation.

Twenty-two students in Year 4 from an international school identified as School X participated in this study. The children's ages ranged from 7 to 10 years old. A Year 4 Science teacher identified as Ms Peach was informed about this research and she agreed to cooperate and participate. The researchers chose to conduct this study in a Year 4 class as it is an appropriate age group to provide responses in order to obtain better results. The first Science lesson on the topic of 'Air' in a Year 4 classroom was observed. The lesson focuses on the characteristics, components and different uses of air. At the beginning of the lesson, students were given the opportunity to share their ideas about air. The teacher, Ms Peach, elaborated on the students' ideas about 'Air'. Next, students were seated in groups to read about the different uses of air consisting of nitrogen, oxygen and carbon dioxide. Later, each group was given a task to write out the uses of a particular air in their own words and then, they presented their work.During the observation, the researchers looked into various aspects, for instance, the teacher's teaching methods, classroom management skills and students' responses towards the lesson. After the lesson, the teacher was asked to fill up a reflection form. Besides that, the students were given a survey questionnaire to obtain data on their views aboutthe lesson.

In addition to further support this study, a test was given to the students to prove students' ability in answering the questions on the topic of 'Air' based on their understanding before the hands-on experiment was implemented.The test was marked by two teachers to ensure reliability of findings. As Howell et al. (2005) and Fink (1995) mentioned 'inter-rater reliability addresses the consistency of the implementation

of rating system' (cited in VanNoord, 2007: 56). After two weeks, a lesson on carbon dioxide using the hands-on experiment approach was conducted. The same procedures for data collection were carried out.

Findings

Teachers including well-known authors on learning styles have demonstrated that people perceive and process information in qualitatively different ways (Witkin et al., 1977; Hudson, 1966; Pask, 1976; Entwistle, 1981, 1991; Entwistle and Ramsden, 1983 cited in Fielding, 2006). Thus, it is vital for the teachers and the students to identify their own learning styles as a foundation towards effective teaching and learning (Fielding, 1994). Therefore, the students' preferences in learning Science before and after the implementation of hands-on experiments were identified through the survey questionnaires which are tabulated in Table 1.

Table 1: Year 4 students' preferred learning method in Science

The implementation of hands-on experiments	Silent reading	PowerPoint presentation	Note taking	Experiments
Before	0	2	1	19
After	1	1	2	18

Table 1 shows that after the implementation of hands-on experiments in the class, one of the students, Student Q claimed that he or she prefers silent reading. However, Student Q still enjoys hands-on experiment and believes that hands-on experiment made Science lessons enjoyable (refer to Table 2). Similarly, Student I who prefers note taking and Student V who prefers PowerPoint presentation as listed in Table2, stated that they favor experiment after they did the hands-on experiments in class.

Table 2: Change in students' perspectives on learning styles in learning Science

Student	Which type of activity would be the best in learning Science?		What did you enjoy most in today's lesson?	
	Without hands-on experiments	With hands-on experiment	Without hands-on experiments	With hands-on experiment
I	Note taking because it's easier	Experiments	Doing poster of what we did	When we did experiments I enjoy very much
N	Experiments	Note taking	When we did poster	Note taking
Q	Experiments because it is creative	Silent reading	Science presentation	Experiments
U	PowerPoint presentation	PowerPoint presentation	No comment	Nothing
V	PowerPoint presentation	Experiments	Nothing	Experiments

Even during the first lesson, the students enjoyed other activities that did not involve hands-on experiment such as making posters in groups and presenting their work on different uses of air as seen in Table 3.

IOJPE
International Online Journal of Primary Education
ISSN: 1300 – 915X
www.iojpe.org
2014, volume 3, issue 1

Table 3: Students' perspectives on different activities in Science lesson

Student	What did you enjoy most in today's lesson?	
	Without hands-on experiment	With hands-on experiment
A	Group work	Experiments
B	We get to write and decorate	The way teacher teaches me.
D	Presenting our poster	Experiments
T	The presentation	Experiments

In addition, twelve students in fact recommended Science experiments to be conducted in class at the beginning of the study when hands-on experiment was not involved. The survey questionnaire requested students to give their suggestions on how Science lessons can be further improved so that lessons can be enjoyable. It was proven thatthe majority of the students stated that they enjoyed doing the experiments both before and after hands-on experiments were implemented.Based on a research done by Flowerday and Schraw (2000 cited in Brophy, 2010), teachers believed that a choice of learning strategies especially experience-based learning will increase the interest, engagement and learning in students. They also mentioned that students who did not show much motivation towards school activities at first experienced a stronger impact from the implementation of various learning strategies.In line with this, the researchers found quite a number of positive responses from the students in this research involving hands-on experiments which incorporated Kolb's experiential theory in the lesson.

4.1 The Impact of Hands-on Experiments on Students' Motivation in Learning Science

As mentioned, a survey questionnaire was given to twenty-two Year 4 students after the lessons with or without hands-on experiment. All the data obtained from the students before and after the implementation of hands-on experiments were tabulated to compare the students' responses before and after the implementation of hands-on experiment.

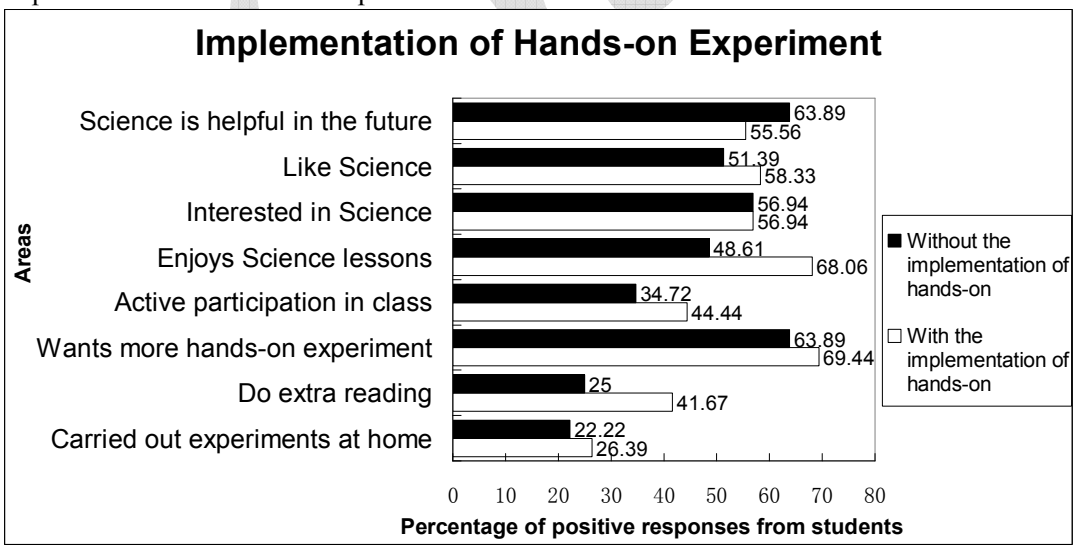

Figure 4: A comparison of students' responses towards Science lessons with and without the implementation of hands-on experiments.

ISSN: 1300 – 915X
www.iojpe.org
2014, volume 3, issue 1

The differences of percentage in students' responses towards Science lessons with and without the implementation of hands-on experiments were calculated and recorded. After the implementation of hands-on experiment, students showed more anticipation in the implementation of hands-on experiments. There was an increase from 63.89% to 69.44% as seen in Figure 4. Besides, from Figure 4, it is shown that students enjoyed Science lessons more with hands-on experiments. The percentage of students' positive responses before and after the application of hands-on experiments increased from 48.61% to 68.06%.

As students enjoyed the lesson, it developed students' liking towards Science as a subject. Among twenty two Year 4 students, 51.39% of students like Science as a subject even before the hands-on experiments were implemented. After the application of the experiment in class, 58.33% of students liked Science as a subject. There was an increase of 6.94% of students who had developed their liking towards Science subject after they had gained the experience from experiments.

However, based on the results obtained from the survey questionnaire, it was found that there was no change in students' interest in learning Science. Nevertheless, from the researchers' opinion,students showed slightly more interest in learning Science when hands-on experiment was implemented. The researchers identified the development of students' interest through the students' expressions, responses and participation in class based on the classroom observation. For example, most of the students cheered together at the beginning of the Science lesson with hands-on experiment.

According to Brophy (2010), as students enjoy learning and build their interest in learning, it will lead them to be active participants in class. Although students' interest in learning Science remained 56.94% with and without hands-on experiment, the classroom observation revealed that there was more active participation when hands-on experiment was involved. From the students' perspective, there was an increase of 9.72% of students' participation which increased from 34.72% to 44.44%. Furthermore, the Science teacher, Ms Peach commented briefly that students were very engaging and participative in both of the Science lessons with and without hands-on experiments. The researchers, on the other hand, observed both of the lessons and found a slight difference in students' participation. During the observation, the researchers noticed that students showed more participation when hands-on experiment was conducted especially during the experiment as well as questioning and answering sessions.

Surprisingly, there was decrease of percentage from 63.89% to 55.56% on students' perspective in applying their knowledge and understanding on Science subject in their future. From the view of the researchers, most of the students who had been relying on memorizing the information in their textbooks to achieve academically failed to relate the concepts learnt through experiments with the real world. Although they had conducted the hands-on experiments, they only gained the knowledge and understanding of the content. They had not learned to connect their new knowledge gained to their prior knowledge, interpret what they learn from various ways, and apply their knowledge to novel situations as well as to explain and predict phenomena and events happening in the surroundings.

Furthermore, this study has shown that hands-on experiments motivated students to take further actions such as doing extra reading and conducting experiments at home. According to Ormrod (1999), motivation refers to the inner states that arouse us to take action, push us in particular directions and keep us engage in certain activities. Burner 'points out that most children are intrinsically motivated to learn about the natural world, particularly when learning involves…hands-on experiences and is perceived as relevant and can be made meaningful' (1965 cited in Carin and Bass, 2001: 130). As shown in Figure 4, an increase of 16.67%, from 25% to 41.67% of students took the initiative to do extra reading at home about Science. Subsequently, students widened their knowledge and understanding about Science.

ISSN: 1300 – 915X
www.iojpe.org
2014, volume 3, issue 1

Wigfield et al. (1998) also mentioned that when students are intrinsically motivated, they willingly engage and actively participate for their own sake and out of interest in an activity. This statement was also proven in this study. There was an increase of percentage of active participants in class as shown in Figure 4. Besides that, students also improved in their communication skills in questioning and answering as they involved themselves in the activities conducted. Stronge et al. (2004) stated that each student's learning style are met as they undergo the cycle of experiential learning in hands-on experiment, resulting in the development of students' confidence, enthusiasm, motivation and achievements.

In contrast, the findings on the students' initiative in carrying out experiments at home obtained from the survey questionnaire showed a decrease of 4.17% from 26.39% to 22.22%. The researchers believed that since the students had just conducted an experiment in school, they would be interested to gain additional knowledge regarding the topic. Thus, this would encourage them to do extra reading to expand their understanding or develop new ideas about the subject before carrying out an experiment.

4.2 Impact of Hands-on Experiment on Students' Academic Achievements

This study supports the statement made by Jindrich (1998) mentioning that researches demonstrate that people recall things better though hands-on experiment. The results of the pre-test before the implementation of hands-on experiments and post-test after the implementation of hands-on experiments given to the students prove this.Figure 5 shows the record of students' pre and post test results which identifies the students' academic development.

Overall, the twenty-two students in Year 4 have shown a slight improvement of 4.32% based on the pre-test before the implementation of hands-on experiment and post-test after the implementation of hands-on experiments. Interestingly, there were equally ten students who had improved and declined in their academic achievement after the implementation of hands-on experiment whereas the other two students, Student M and Student V remained constant.

Based on Figure 5, there were some of the students' results which had increased significantly and some had dropped drastically. For example, Student R and Student Q had showed a significant improvement in their results. The researchers believe that both of the students' learning styles were met through hands-on experiments, resulting in the great improvement in their results. On the other hand, Student N's result had dropped from 85% to 20%. As Fielding (2006) and Thanasoulas (2001) mention, certain situations or tasks may require a way of working that a learner discovers hard to handle. Therefore, the researchers concluded that Student N was unable to adapt and be flexible with the diverse learning styles. Fielding also mentions that 'such situations can either tap into a learning style we seldom use and begin to stretch it or encourage us to develop learning strategies which enables us to cope effectively' (2006: 7). Another reason that may cause Student N's results to drop is because students will construct their own ideas by interpreting what they hear, read and see in conducting hands-on experiments (NSTA, 2001). Students who were not exposed to this method of learning will not be able to hear or see what is before them.

IOJPE
International Online Journal of Primary Education
ISSN: 1300 – 915X
www.iojpe.org
2014, volume 3, issue 1

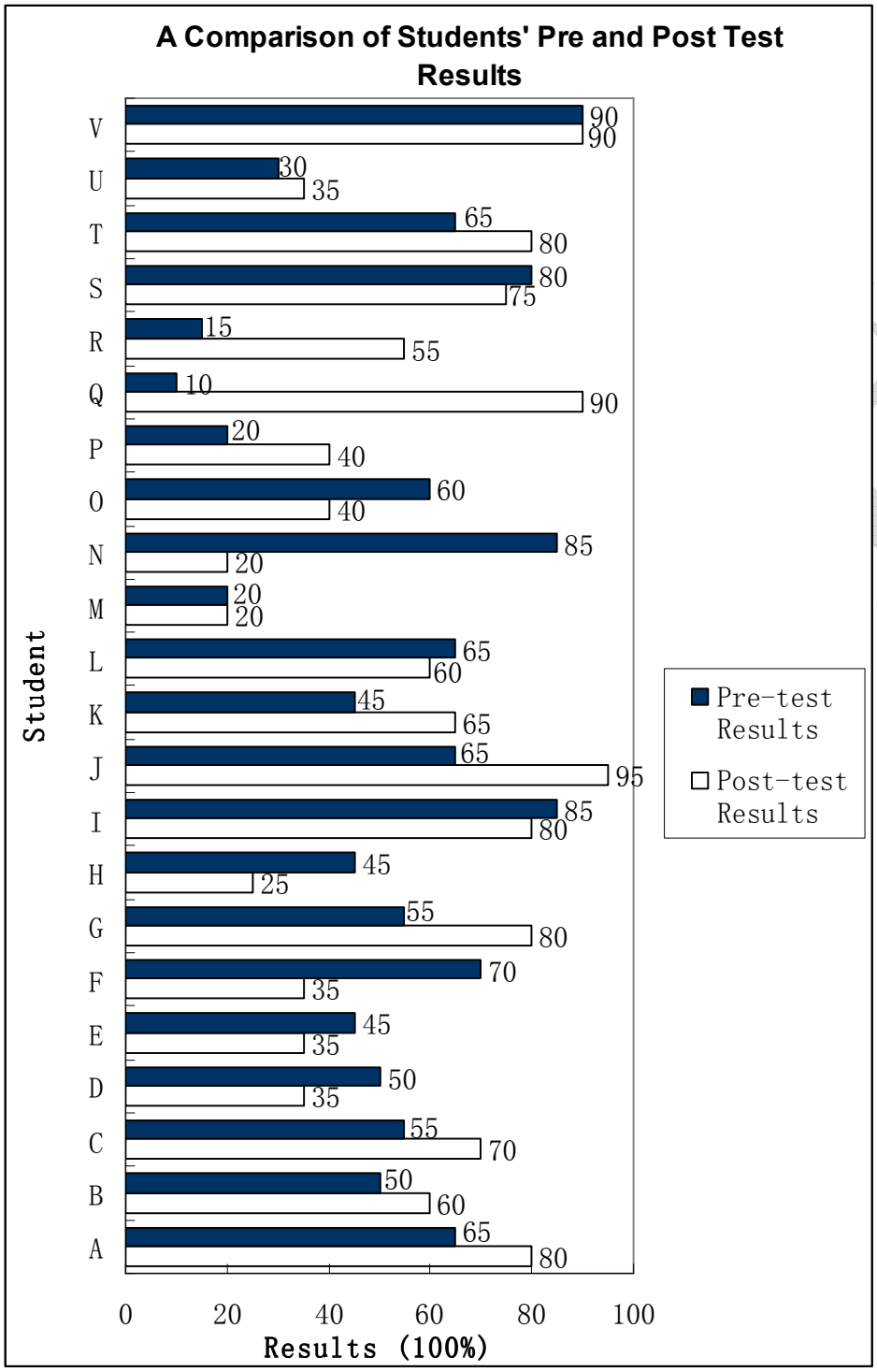

Figure 5: A Comparison of Students' Pre and Post Test Results

Thus, sufficient guidance must be given by the teacher to enable students to adapt to different learning styles as well as to facilitate them in understanding the concepts and connections in learning Science (Allen, 1973; Klahr et al., 1999). This matter led to another significant matter which is the importance and requirements for teachers to undergo adequate training in order to teach Science through hands-on experiments appropriately (Thanasoulas, 2001). Generally, Ms Peach agreed to the implementation of hands-on experiments. She also stated that the class was manageable and she did not face any barriers in implementing the experiment except for the level of noise. However, based on observation and findings gathered, the researchers suggested that more guidance should be provided for not only a particular group of students but for all of the students. The teacher should be alert and aware of students' responses in order to identify if any child is facing an issue.

Conclusion

From this study, the researchers recommend that further research can be carried out on Bruner's theory of instruction in learning Science with the implementation of hands-on experiments. According to Bruner (1960), a theory of instruction should address four major aspects which are predisposition to learn, structure of knowledge, modes of representation and effective sequencing. It is vital for teachers to utilize the theory as guidance as it supports and acts as a foundation to guide the students to be independent learners whereby they are able to discover new things, construct new knowledge, interpret what they have learned and carry out experiments to test their findings.

In conclusion, there are several areas that can be examined and further research be conducted as there are still gaps in this study. To sum up this research report, the effectiveness of hands-on experiments towards students' learning process and academic development were shown in various data collected. The majority of the data collected had shown positive results in most of the areas. As a result, this study has proven that hands-on experiments promote students' learning and builds on their intrinsic motivation.

References

Allen, L. (1973). An examination of the ability of third grade children from the science curriculum improvement study to identify experimental variables and to recognize change.*Science Education*, 57 (1), 123–151.

Andersen, P., &Vandehey, M. (2012).Career counseling and development.2nd edition, United States of America: Brooks/Cole.

Blandford, S., & Knowles, C. (2009).*Developing professional practice 0-7*. England: Pearson Education Limited.

Brophy, J. (2010). *Motivating students to learn*. 3rd edition, United Kingdom: Routledge.

Bruner, J. (1960). *The Process of Education*. Cambridge, MA: Harvard University Press.

Carin, A., & Bass, J. E. (2001).*Teaching science as inquiry*. 9th edition, New Jersey: Prentice-Hall, Inc.

Cowan, J. (1988). *On becoming an innovative university teacher: reflection in action*. UK: Open University.

Federal Aviation Administration, (2009).*Aviation instructor's handbook*. New York: Skyhourse Publishing, Inc.

Fielding, M. (1994). Valuing difference in teachers and learners: Building on Kolb's learning styles to develop a language of teaching and learning. *Curriculum Journal*, 5(3) 393-417.

Ghartey-Ampiah, J., Tufuor, J. K., &Gadzekpo, V. P. Y. (2004) Teachers' views on the role of science practical activities in the teaching of science in ghanaian senior secondary schools. *African Journal of Educational Studies in Mathematics and Sciences*, 2 (2) 1-9.

Ghazaria, M. (2008).References for importance of hands-on activities in learning. Retrieved from http://www.mass.edu.lb/PAPER%20ON%20HANDS%20ON%20LEANRING.pdf

Gibbs, G. (1988). *Learning by doing: A guide to teaching and learning methods*. UK: Liverpool Hope University College.

Gorard, G. (2004). *Combining methods in educational and social research*. Berkshire: Open University Press.

Healey, M., & Jenkins, A. (2000) Kolb's experiential learning theory and its application in geography in higher education. *Journal of Geography*, 99 (5) 185-195.

James H. & McMillan (2008).*Educational research: Fundamentals for the consumer*. 5th edition, United States: Pearson Education.

Jindrich, S. (1998). References forhow do children develop? Retrieved from http://www.gdrc.org/kmgmt/learning/child-learn.html

Jones, R., & Wyse, D. (2004).*Creativity in the primary curriculum*. London: David Fulton Publishers Ltd.

Kolb, D. A. (1984).*Experiential learning: Experience as the source of learning and development*. New Jersey: Prentice-Hall.

Kolb, D. A., Boyatzis, R. E., &Mainemelis, C. (1999). *Experiential learning theory: Previous research and new directions*. Cleveland: Department of Organizational Behaviour, Weatherhead School of Management and Case Western Reserve University.

McMurray A. J., Pace, R. W. & Scott, D. (2004).*Research: A common sense approach*. Melbourne: Thomson.

National Science Teachers Association, (2001).*Practicing science: The investigative approach in college science teaching*.Virginia: National Science Teachers Association Press.

Norman, W. (2005).*End the biggest educational and intellectual blunder in history; a $100, 000 challenge to our top educational leaders*. Florida: Scientific Method Publishing Co.

Ormrod, J.E. (1999). Human learning. 3rd edition, New Jersey: Prentice Hall.

Overbaugh, R. (2004). An overview of jeromebrunner his theory of constructivism, United States: Old Dominion University. Retrieved from http://www.odu.edu/educ/roverbau/Class_Websites/761_Spring_04/Assets/course_docs/ID_Theory_Reps_Sp04/Bruner-Cherry.pdf

Piaget, J., &Inhelder, B. (1969).*The psychology of the child*. New York: Basic Books.

Skymansky, J. A., Hedges, L. V., & Woodworth, G. (1990) A reassessment of the effects of inquiry-based science curricula of the '60s on student performance.*Journal of Research in Science Teaching*, 27, 127-144.

Stronge, J. H., Tucker, P. D. &Hindman, J. L. (2004).*Handbook for qualities of effective teachers*. USA: Association for Supervision and Curriculum Development.

Thanasoulas, D. (2001). References for constructivist learning, ELT Newsletter, Article 54. Retrieved from http://www.eltnewsletter.com/back/April2001/art542001.htm

Wigfield, A., Eccles, J. S., & Rodriguez, D. (1998).The development of children's motivation in school contexts.In P. D. Pearson, & Iran-Nejad, A. (Ed.), *Review of research in education*. Washington, DC: American Educational Research Association.

Klahr, D., Chen, Z., &Toth, E. E. (1999). From cognition to instruction to cognition: A case study in elementary school science instruction. In K. Crowley, Schunn, C. D., & Okada, T. (Ed.), *Designing for science:Implications from professional, instructional and everyday science,* Mahwah, New Jersey: Erlbaum.

Wilson, R. (2008). References for promoting the development of scientific thinking, Earlychildhood NEWS. Retrieved from http://www.earlychildhoodnews.com/earlychildhood/article_view.aspx?ArticleId=409

Woolnough, B. E. (1994). *Effective science teaching*. Milton Keynes: Open University Press.

Worth, K. (2010) Science in early childhood classrooms: Content and process. Massachusetts: Education Development Center, Inc. Retrieved from http://ecrp.uiuc.edu/beyond/seed/worth.html

VanNoord, M. L. (2007). Identifying factors of motivation in adult learners returning to higher education in nursing. US: ProQuest Information and Learning Company.

IOJPE
ISSN: 1300 – 915X
www.iojpe.org
International Online Journal of Primary Education 2014, volume 3, issue 1

THE DETERMINATION OF RESILIENCE SCALES' SCORES OF TEACHERS IN THE SAMPLE OF ISPARTA

Assist. Prof. Dr. Mehmet KUMARTAŞLI
Suleyman Demirel University
Faculty of Health Sciences, Department of Sport Sciences, Isparta – Turkey
mehmetkmrtsl@hotmail.com

ABSTRACT
The aim of this study was to investigate psychological endurance levels of private education teachers and physical education teachers working in Isparta city. 25 private education teachers and 25 physical education teachers were voluntarily participated in this study who were working in Isparta city and attended Interzonal Teacher's Group Meeting. Psychological Endurance Scale for Adults which was adapted to Turkish by Basım and Çetin (2011) was used in order to determine psychological endurance levels. The frequencies of the data were obtained by SPSS 18 packaged software and they were evaluated with t-test. In this study, totally 50 teachers including 25 private education teachers and 25 physical education teachers were participated who have worked professionally for 11.48±5.07 years. 33.3% (n=18) of these teachers participated in the study were male and 59.3% (n=32) of them were female. The average psychological endurance scores of physical education teachers was 96.32±8.22 and that of private education teachers was 99.52±7.06. As a result of statistical evaluations, a significant difference was not found between psychological endurance levels of private education teachers and those of physical education teachers ($p>0.05$).
Keywords: Teacher, Physical education, private education, psychological endurance.

INTRODUCTION

Stressful way of life is generally considered as one of the main reasons of physical illness as well as mental disorders. In fact, even if people are exposed to stress in the same way, it is very difficult for some people to adapt stressful life events. Resilience is regarded as a personality trait minimizing the negative effects of stress and preventing disease-causing organismic tension. In this context, individuals with high levels of hardiness continue their daily activities, keep their lives under control, and see unexpected changes as an opportunity for development. Alienation from life, external locus of control and resistance against change and development are seen with non-resistant individuals (Klag and Bredley 2004). Regarded as a personality trait, resilience can also be considered as closely related to other personality characteristics of individual.

In general, resilience refers to a success or adaptation process (Hunter 2001). Cencirulo (2001) describes the personality trait of resilience as something that individuals can gain a positive perspective on stressful life events for themselves. In their researches, Karaırmak and Çetinkaya (2009) describe resilience as one of the important personality traits to maintain a healthy emotional state in the face of stressful life events of individual.

When the indispensability of human element, possible organizational implications of stress, that job stress is a problem of individual and organization are taken into consideration in educational organizations, it becomes extremely important to know how to cope with stress and to learn to be strong. In general, teaching and school management are considered among stressful jobs (Dönmez and Genç 2006). The schools are seen as the most stressful place of our society so stress is considered as a serious mental health problem that teachers have to deal with.

Although resilience is seen as a variety of situations carrying significant risks in terms of psychological injuries that people can face, it can be described as a good result as well (Masten and Reed 2002). From this angle, the protective factors that contribute to better outcomes, processes and mechanisms can be seen as a resilience. It is seen that individuals with high resilience are more successful and effective in their work lives (Maddi, 2004).

When looked at the studies about resilience in the country and abroad, Gökçe (1993) investigated the relationship between resilience and mental health of university students in his work. Cencirulo (2001),in his work, investigated the relationship between job satisfaction and hardiness of elementary school teachers and these teachers implemented Resilience Scale.

Terzi (2008) investigated the relationship between resilience of university students and perceived social support in his work. Karaırmak and Çetinkaya (2009), in their studies, investigated the relationship between resilience and attachment styles of adults who experienced earthquake. Motan and Gençöz (2009), in Turkish sample, investigated and implemented reliability and validity studies of resilience scale on university students.

Priyadarshini (2009) conducted a study on the resilience of employees at the business activities rental office for companies. Karavardar (2010) investigated the relationship between psychological intimidation and resilience. Kurt (2010) made a study on the levels of job satisfaction and resilience of Agile Force Personnel's attitudes to cope with stress.

METHOD

25 Private Education Teachers and 25 Physical Education Teachers working in Isparta and participating in Inter-zone Teacher Group Meeting per year have taken part in this study willingly. Resilience Scale for Adults adapted to Turkish by Basım and Çetin (2011) has been used to determine the levels of psychological resistance. Datas have been obtained frequencies in SBSS 18-pack programme and evaluated by t test.

SYMPTOMS

25 Private Education Teachers and 25 Physical Education Teachers whose working years are 11.48± 5, 07 have participated in our study. 33.3% (n=18) of the teachers participating in our study are male while 59.3% (n=32) of them are female. The average scores of resilience of physical education teachers taking part in this study are 96,32 ±8,22 while the average scores of resilience of Private Education teachers are 99,52 ± 7,06. As a result of the statistical evaluation, A significant difference hasn't been found between the levels of resilience of Private Education Teachers and Physical Education Teachers ($p>0.05$).

DISCUSSION

Teaching is proud in society's mind and also satisfying and exciting profession in terms of requiring a great responsibility. No other job can form the lives of so many children and young people (Farris 1996). Teaching is also known as a profession that requires full of disappointment and trouble, patience, love, knowledge and skill. Due to these properties, teaching profession requires a high level of emotional property. Not carrying a high levels of cognitive achievements, the applicants' success decreases, their job burnout increases (Şahin 2008) and the level of job satisfaction drops. (Koyun and others 2007). For this reason, emotional properties can determine the nature and quality of education.

Cencirulo (2001), in his study, "the scale of Job satisfaction" and " the scale of resilience" was applied to 224 teachers in his research that he examined the relationship between hardiness and job satisfaction in elementary school teachers by using demographic variables. As a result of research, it has been concluded that there is a significant relationship between the level of resilience and job satisfaction depending on the structure of personality but years of experience and age variables don't affect resilience level and job satisfaction.

Terzi (2008) investigated the relationship between resilience of university students and perceived social support in his work. Under research, it has been found that there is a significant relationship between "resilience scale" and "resilience with multi-dimensional perceived social support".

Priyadarshini conducted a study on the sources of occupational stress, role conflict, role ambiguity, resilience in his research on employees at the business activities rental office for companies.
Kurt (2010) made a research on the levels of job satisfaction and the resilience of Agile Force Personnel's attitudes to cope with stress and statistically reached a significant conclusion between job satisfaction and resilience.

CONCLUSION

Any work about the comparison of the resilience levels of Private Education Teachers and Physical Education Teachers in elementary schools hasn't been found. This Study has the quality to bear a torch on future research. This study includes a small sample in the province of Isparta, a broader sample of future studies and a way that includes different branch teachers will make us reach to the new results and the levels of pyschological resistance of different branch teachers will be determined.

REFERENCES

Basım and Çetin (2011) Reliability and Validity Studies of Resilience Scale for Adults. Turkish Journal of Psychiatry 2011;22(2):104-14

Cencirulo. R.S (2001) The relationship between hardiness and job satisfaction in elemantary school teachers , Unpublished doctoral dissertation , University of La Sierra.

DÖNMEZ Burhanettin and Gülten Genç (2006) The perceptions related to the levels of learning strenght of school managers and teachers in public high schools, İnönü University Faculty of Education Volume 7. Issue 12.

Farris (1996) Teaching, Bearing The Torch. A Times Mirror Company. Brown-Benchmark

Gökçe (1993) The Relationship between Psychological Strenghts and Mental Health of University Students. Unpublished Master Dissertation, Ege University, Institute of Social Sciences, IZMIR.

Hunter AJ (2001) A Cross-cultural Comparison of Resilience in Adolescents. J Pediatr Nurs, 16:172-179.

Karaırmak Ö, Siviş Çetinkaya R (2009) The Relationship between the Attachment Styles of Adults experienced earthquake and their Resilience. 18th National Educational Sciences Conference, 1st-3rd October, İzmir.

Karavardar G (2010) The relationship between certain personality traits and psychological intimidation. Journal of New world Sciences Academy . 5. (3)

Klag , S, and Bradley , G (2004) The role of hardiness in stress and illness : An exploration of the effect of negative affectivity and gender.British Journal of Health Psychology.9.137- 161

Koyun C,Kangalgil , M and Demirhan G.(2007) The identification and comparison of levels of job satisfaction of the physical education teachers in elementary schools at the central districts of Ankara. The Proceedings of 5th National Symposium on Physical Education and Sports Teaching 2nd-3rd October 2007, Adana : Çukurova University, Physical Education and Sports School s 80-87

Kurt N. (2010) The Levels of job satisfaction and Resilience of Agile Force Personnel's attitudes to cope with stress. Unpublished Master Dissertation. Gazi University, Institute of Education Sciences, Department of Educational Sciences, Department of Psychological Counseling and Guidance.

Masten AS, Reed MG (2002) Resilience in Development. CR Snyder SJ Lopez (Ed.), The Handbook of Positive Psychology (74-88). New York: Oxford University Pres, s.143

Maddi S.r (2004) Hardiness An operationalization of existential courage Journal a Humanistic Psychology 44 (3) .279-298

Motan and Gençöz (2009) How can we measure the resilience? Validity and Reliability Studies of Personal Opinion Scale in a Turkish Sample, Journal of Crisis 17.(1) 1- 13.

Priyadarshini S.K (2009) A study on occupational stress and hardiness among BPO employess. Social Science International. 25(1) 34-45

Şahin , Ş (2008) Physical education teachers' levels of burnout and life satisfaction. Unpublished Master Dissertation. Mersin University, Institute of Health Sciences. Turkish Psychological Counseling and Guidance Journal 9.1-9