

IJPE

International Journal of
Progressive Education

Volume 12 Number 1 February, 2016



An International Journal Sponsored by International Association of Educators(INASED)

International Journal of Progressive Education

Frequency: Three times a year; February, June, and October

ISSN: 1554-5210

Indexing/Abstracting:

- 1- OCLC-WorldCat: <http://www.oclc.org/worldcat/default.htm>
- 2- Journal Finder: <http://journalfinder.uncg.edu/demo/>
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- \$140 Library/Institution USA (Canada: \$160; Rest of World: \$160)

Single Issues and Back Issues: \$25 USA (Canada: \$35; Rest of World: \$35)

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Review essay: Can progressive education save America's schools?

John L. Pecore*

University of West Florida

Abstract

In *Loving Learning: How Progressive Education Can Save America's Schools*, Tom Little and Katherine Ellison describe Tom's experiences, personal journey and knowledge of progressive education. During a pilgrimage to 45 progressive schools, Tom set out to visit schools that unabashedly called themselves progressive and asked the question, "What is progressive education?" This essay first reviews the book around six core strategies identified as progressive, and then provides a discussion in the context of 20th century curriculum ideologies. Differences between ideologies are what lead to the dualism that makes education divisive. The current state of education reveals a new surge for change. By avoiding the *-isms* that force the dichotomy in education, progressive education strategies can play a more central role in curriculum.

Keywords: Progressive Education, America's Schools, curriculum ideologies

* John L. Pecore is an associate professor in the College of Education and Professional Studies at the University of West Florida. He also serves as assistant director for science education and evaluation of program development and assessment at the Institute for Biomedical Philosophy. Pecore is a founding board member of the Progressive Education Network. His scholarly interests include situating learning in contextualized experiences with an emphasis in project-based learning and instruction.

Correspondence: jpecore@uwf.edu

Little, Tom, and Katherine Ellison. *Loving Learning: How Progressive Education Can Save America's Schools*. New York: W. W. Norton & Company. ISBN-13: 978-0-3932-4616-7.

While tradition in academic writing dictates referring to an author by last name, use of first names is a common practice for progressive educators. For this reason, it seems awkward to refer to the book's author as Little. Additionally, I want to be forthright with respect to having known Tom for over 10 years since forming PEN with five of our colleagues from across the country.

Introduction

In the Fall of 2013, Tom Little stood at the podium in front of a packed crowd of more than 800 participants at the 4th biannual Progressive Education Network (PEN) Conference. Tom began by stating, "I am a very, very lucky guy. I was able to go on a pilgrimage that I dreamed about for many, many years" (Little 2013). Since he first read Lawrence Cremin's book *The Transformation of the School*, Tom had been "doing a deep dive" (Little 2013) into the history of progressive education. Over the years of PEN meetings, I had many conversations with Tom about progressive education and can vividly recall our discussion in the early days of PEN about defining progressive education. During one exchange, we questioned who were we to define progressive education. We struggled with the fact that progressive education today, as in the past, has different meanings for different people. In the end, we agreed that a good foundation would be the seven tenets of progressive education as described by Cremin (1961; Little & Ellison 2015, 207-208; Pecore 2015).

During his pilgrimage, Tom set out to visit schools that unabashedly called themselves progressive and asked the question, "What is progressive education?" He visited 45 schools and spoke with over 100 educators. Some of the schools were in regions of the United States more populated with like-minded educators and thus more accepting of the word progressive, while in other more isolated regions the term was less positively accepted. On a visit to one Midwestern school, one of the leaders commented, "Tom, you coming to visit is like the Pope coming to visit" (Little 2013). Tom joked that he was tempted to ask which Pope. What Tom found in the many schools he visited, was an uncanny commonality of practice. Except for the teachers and the kids, no one knew the difference between a progressive school in New York City and Des Moines, Iowa. Through his school visits, Tom ascertained that the progressive practices and pedagogies he observed were attributed to tradition passed down by word of mouth, from person to person, and teacher to teacher (Little 2013).

When asked to name schools he planned to visit, a common response was "really, they're progressive?" or a bolder statement like "I don't think they are that progressive." or even the extremely bold statement, "They're not progressive" (Little 2013). This crux of the debate over defining progressive education came down to whether we (i.e. progressive educators) should judge which schools are progressive or not. For several reasons, as well as outside pressures, progressive schools varied in the degree to which they adhered to each of the seven tenets; however, each school embodied child-centered practices and embraced the importance of the interest of individual children.

Review of *Loving Learning*

In *Loving Learning: How Progressive Education Can Save America's Schools*, Tom Little and Katherine Ellison recount the story of Tom's pilgrimage. They described his visits with school children, teachers, and administrators of progressive schools across the country and included stories of his personal journey as a teacher and educational administrator as well as his knowledge of the history of progressive education. The intent of their work was to show how the success of several progressive schools returned joy back into learning while simultaneously providing a solution for many of the most pressing education dilemmas in the United States.

For Tom, progressive schools had a history of engaging children's emotions as well as their intellects, building strong and caring communities, and encouraging children's sense of social justice.

Tom began the book with a brief history of progressive education. Certainly, summarizing 100 years of a movement along with the historical roots in 20 pages, a feat Cremin (1961) needed 353 pages to complete, was a daunting task. Still, Tom presented a concise overview highlighting major contributions to progressive education.

Despite his admiration for Cremin who considered defining progressive education an elusive task, Tom believed it a moral imperative to clearly define the term. During his school visits, Tom asked each person interviewed to define progressive education. Numerous responses provided Tom a coherent definition: "Progressive Education prepares students for active participation in a democratic society, in the context of a child-centered environment, and with an enduring commitment to social justice" (Little & Ellison 2013, 52). He also identified the following six core strategies:

- Attending to student's emotions and intellects;
- Guiding learning around student interests;
- Curtailing standardized testing and ranking;
- Integrating curriculum and disciplines;
- Involving students in real-world endeavors;
- Supporting active civil participation for social justice (Little & Ellison 2013, 52; Meier 2015).

The goals of meeting the needs, both emotional and intellectual, of students were highlighted throughout the schools Tom visited. He witnessed a tradition traced back to Rousseau, Pestalozzi, and Froebel of progressive schools creating a comfortable learning environment to include, for example, rugs where students gathered daily. The whole child approach is at the core of progressive practices, which involves reducing stress, fostering strong relationships with teachers and classmates, and providing a childhood that allows kids to be kids. Tom's recommendation for meeting the needs of the whole child that challenges students intellectually and ensures a feeling of emotional safety was smaller student-teacher ratios. The smaller the class size the ". . . better relationships between students and teachers, fewer discipline problems, higher student motivation, better academic performance, fewer high school dropouts, and better teacher morale" (Little & Ellison 2015, 66).

Another core progressive strategy involves focusing on student interests to foster children's natural love of learning. For nearly a century, progressive educators have advocated for students to pursue their interests, learn at their own pace, and explore through discovery learning (Bruce & Eryaman, 2015). The teacher is viewed as the *guide on the side* as opposed to the *sage on the stage*. As advocates of joyful learning, a method for bolstering social and cognitive skills, improving creativity and problem solving, and developing abstraction and collaboration abilities, spontaneity through play in children's lives resonated with many of the educators Tom interviewed. Thus, the arts are an important component of education, which is supported with research that suggests benefits in terms of decreasing drop out rates, building confidence, and even improving test scores.

Tom, along with most progressive educators, was vehemently opposed to standardized testing. Among the reasons Tom cited included teaching to the test; reducing time for art, music, or even lunch; and the pressure such high-stakes tests place on students. For progressive public schools the accountability movement of requiring teachers to be ranked using a rubric and tying teachers' salaries to students' scores created barriers to being progressive.

Through Tom's school visits, he observed instances of integrated curriculum. He observed students using science, math, and writing skills when collaboratively researching watersheds. Students traveled on field trips to a nearby creek, measured water levels and calculated flow rates, blogged about the process, and finally prepared audiovisual presentations. At another school, students invented an island to learn geology, ecology, and culture. The progressive curriculum has long embraced the technical and visual arts and the progressive schools Tom visited integrated technology as tools for learning whether through students interacting with students in China, taking classes in digital

photography, or designing a video game.

Several progressive schools noted in the book were fortunate to have working farms where students were given the real work on a farm. In other schools the use of project-based learning provided experiential learning opportunities around real-world problems. Examples cited included assigning a kindergarten class as custodians of a new goldfish pond, figuring out why early American settlers fought with natives, and designing clothes for characters in a book. In one school, older students editing a journal assisted younger students who submitted manuscripts. Real-world projects like these also provided an opportunity to strengthen community. Another commonality of the schools Tom visited was fostering a sense of connectedness in the community and respect for diversity. Schools like Park Day surpassed tolerance by celebrating differences. More than a decade ago, Park Day School enrolled a transgender kindergartener; the school currently enrolls over half a dozen students who identify as transgender.

Social justice permeates the way many progressive schools function from the way students are encouraged, with adult guidance, to democratically solve their own problems, to a sliding scale tuition policy. Several of the schools Tom visited included an explicit emphasis in a social justice mission such as challenging oppression or environmental stewardship. While community engagement and activism was, for Tom, a core strategy of progressive schools, schools embrace of social justice varied.

Discussion

The extent progressive schools were able to satisfy all six of Tom's core progressive strategies differed. During Tom's speech at the 2013 PEN conference, he demanded that progressive educators stop being judgmental in terms of questioning a school's progressiveness (Little 2013). Many particulars like cultures, politics, geography, goals, and people impact the ideas and customs that schools support and practice. (Bohan in press). Meeting all six core strategies extremely well does not make one school more progressive than another. Likewise, a school that chooses to focus more on a social justice component of a social reconstructionist curriculum by including activism does not make that particular school more progressive. Tom sought to write a definition for progressive education on which all could agree in an effort to unite progressive educators; however, an attempt at a consensus definition may cause division among progressive educators. For example, some Dewey supporters might take issue with the phrase *preparation for life* as Dewey stated ". . . education is not a preparation for life but is life itself" (Dewey 1897/2013). Another potentially problematic component in Tom's definition is a commitment to social justice. While Tom asserted that Dewey's strong political opinions and social activism demonstrated a personal commitment to social justice, Dewey's ideas of education favored creating an aware and active citizenry as opposed to student demonstration of social justice through activism (Banks 2012).

As many progressive strategies become more mainstream, Tom reminded readers of the role of progressive educators in leading the way. According to one review by Eric Moore (2015) in *Middleweb*, Tom's work comes across as a bit pompous when pointing out that modern research supports the intuitive practices of progressive schools. Tom's zeal for progressive education may have established a duality, setting the progressives in opposition with other educational philosophies. This discord that Dewey, Bagley and others fought against eventually led to the downfall of the progressive education movement in the 1930's. Expanding on Tom's work by providing a theoretical perspective using curriculum ideologies could assist in tempering the divisiveness among ideologies.

According to Schiro (2013), most 20th century curriculum theorists organize ideological positions into three or four classification schemes: scholar academic, fostering ideas of perennialists; social efficiency, depicting aspects of essentialists; learner centered, providing views of progressives; and social reconstruction, representing thoughts of critical theorists. Of importance are overlapping interpretations of educational philosophies within some curriculum ideologies. As Tom (Little &

Ellison 2015) described, aspects of critical theorists philosophies can be seen throughout progressive learner centered schools. Additionally, different labels have been used over the last century. For example, learner centered ideology was termed child study in the 1890s, progressive education between 1910 and 1950, open education from 1965 to 1980, and constructivist from 1990 to present (Schiro 2013).

Differences among curriculum theorists relate to philosophical divergence in terms of the purposes or aims of education as well as ontological and epistemological views. The scholar academic curriculum teaches the essence of academic disciplines to students while the social efficiency curriculum teaches the intellect, morality, and skills required for students to contribute to society and the economy. Conversely, a learner centered curriculum is designed to provide an experience for students to function effectively in a democracy and the social reconstruction curriculum involves student activism to confront local injustices, global problems, environmental concerns, and political issues.

Despite the differences among ideologies, philosophers like William C. Bagley and John Dewey opposed the dualism that made education divisive. According to Null (2007), Bagley's goal was to raise the status of the teaching profession by uniting education professors and academic colleagues. Likewise Dewey disliked the *-ism* that forced the dichotomy present in education (Dewey 1938/1998). Because various curriculum ideologies are deeply rooted in core philosophical positions, there is perhaps little hope in reconciling major differences among curriculum theorists.

Conclusion

A history of the influence of curriculum ideologies on American education reveals how, during the rise of America's Progressive Era between 1870 and 1920 (Little & Ellison 2015), opposing ideologies were simultaneously active in preventing progressive schools from being the norm in America (Schiro 2013). Tom pointed out how shortly after the peak of the progressive education movement in the 1930s, progressive educators declined in number and the schools that remained became isolated. After being dormant for half a century, the nineties brought about a short-lived reprise of the Progressive Education Association followed by organizations like the Coalition of Essential Schools, Forum for Education and Democracy, and Progressive Education Network that promote progressive reforms (Little & Ellison 2015). For the last decade, schools of education have been teaching a constructivist approach to teaching and learning. As a result progressive educators have been gathering and growing in numbers.

The current state of education reveals a new surge of each curriculum ideology to influence American education. According to Tom,

Educators all over the country today are hungry for change, and specifically for models of teaching and learning that make more sense for stressed kids in our globalized economy. The burden of high-stakes tests and the clumsy initial rollout of the Common Core, on top of continuing signs that our system has been failing students and their families, are pushing many to seek alternatives (Little & Ellison 2015, 191).

Tom called for progressive educators to continue to organize and support one another, to educate about progressive practices, and above all, to establish evidence-based practices through research. Providing more empirical evidence of curriculum ideas as advocated by Tom might lead to the use of progressive practices in saving America's schools, as Tom desired.

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The Effects of Using Animations on Sixth Grade Students' Academic Success in Turkish Grammar Learning

Mesut Gün*

Nevsehir Hacı Bektasi Veli University

Abstract

The purpose of this empirical study is to determine how and to what extent the use of animations impacts auditory acquisition, one of the key learning fields in 6th grade grammar, as measured by students' academic success and completion rates. By using a pre-test and post-test design, this emrical study randomly divided a group of Turkish 6th graders into an experimental and a control group, who were taught the same standard lessons (as set forth in the Turkish annual lesson plan) by the same teacher for a period of 10 weeks. In addition to the standard lessons, the experimental group was also shown animations. The results revealed that phonetics performance improved for both the experimental and the control group, but that the group who had been shown the animations improved much more than the group who had been instructed via traditional methods only.

Keywords: Animation, grammar, teaching

* Mesut Gün is an Assistant Professor at the Department of Turkish Language Teaching in Nevsehir Hacı Bektasi Veli University. His research interests are literacy, language arts, and language education.

Correspondence: mesutgun@nevsehir.edu.tr

Introduction

Today's schoolchildren have grown up with instant audio-visual communication via computers and the Internet, and increasingly have opportunities to benefit from these technologies in school settings. Traditional chalk-and-talk teaching is now considered out of date not only by learners, but also for the most part by teachers and teaching institutions. In educational studies, teaching technologies have attracted more scholarly attention in step with the increased importance of technology in the real world. Şahin and Şahin (2007: 310-311) found connections between teaching materials and, meeting the objectives of teaching is possible if these elements are organised properly.

Grammar is the study of voices, words and sentences, and helps us think more comprehensively and precisely (Kavcar et al., 1997: 74). In accordance with the latest developments in language teaching, teaching grammar is now conceived of as bringing linguistics elements from students' sub-consciousness to the level of consciousness; making these elements useful; and helping students to understand how language organisation forms (Demirel & Şahinel, 2006). The linguist Fries (1952) held that one cannot be literate without learning grammatical rules that carry weight within one's working system of oral language (as cited in Hortin, 1994). For all these reasons, it is quite important that grammar education be effective over both the short and the long term.

However, there are considerable problems with grammar teaching as currently practised in Turkey. According to Özbay (2006b: 149), grammar teaching seldom if ever goes beyond the teaching of specific definitions and rules using a limited range of examples. Fundamentally, language is presented as a tool and its rules as information to be memorised; as such, the main purpose in which learning should be provided sufficiently and efficiently is ignored. Teaching grammar based on teaching rules and terms, and concepts that stand for the terms, has been practised for many years; indeed, the teaching of rules and terms has been perceived as the subject's main aim (Karadüz, 2009: 286).

Though the Turkish language is taught at every stage of education, many students have some problems in the usage of their mother tongue, while some cannot use Turkish productively either in oral or written form. It is also obvious that the teaching of Turkish to foreigners has lagged behind expectations (Alyılmaz, 2010: 729). In short, as measured by achievement, Turkish grammar education as a whole can be deemed a failure. One of the basic factors responsible for this failure is the inadequacy of the teaching materials and tools used, which do not spark students' interest (Durukan, 2011). According to Sağır's (2002: 56-59) study of grammar teaching, neither students nor teachers tended to like grammar as a subject, generally seeing it as cold, hard and unlearnable. Other researchers (Çilenti, 1994; Şimşek, 1997) have observed that interaction and the use of a variety of materials in lessons support and increase students' success. For these reasons, we propose that it might be preferable to utilise new teaching methods and participatory activities that are easily grasped and that appeal to students' visual intelligence.

Animation is one of the tools with the potential to enhance student engagement in grammar lessons, and therefore their grammar achievement, as it allows them to be active in lessons, to learn by enjoying, and to make associations between the rules and concepts used in grammar with daily life. According to Daşdemir (2006: 4) animations increase students' awareness to learning, improve their powers of perception, and positively influence their learning skills. Other studies of the educational use of animations have found that for students, animations make learning easier since, in addition to reading, seeing and other sensory organs are involved in the process.

The term *animation* has been defined in a number of different ways. The Turkish dictionary definition of animation is the state of being full of life or vigour, from a Latin root meaning 'refreshing' (Foley et al., 1990); the corresponding Turkish terms for this liveliness equate to refreshing, stimulator, presenter and entertaining (Meb, Megep Child development and education, animation studies: 7). Animation as a technology – defined as detailed moving images that may be

either drawn or computer-generated – is one of the most used components of computer-based multimedia learning (Bülbül, 2009; Foley et al., 1990; Laybourne, 1998).

The prevalence of the Internet and related technologies has led to some alterations in people's interests and communication styles, including increasing attraction to animation and cartoon movies. It is to be expected that such changes in society as a whole will affect schoolchildren and educational environments. Therefore, using and improving new technology-based methods and techniques in educational studies may be considered an obligation rather than a preference (Eryaman, 2006; 2007). Moreover, since animated characters are fairly important in the recreation and advertising sectors, using animations in the classroom has become a key technique for reaching kinaesthetic and visual students (Harrison & Hummell 2010: 20).

Animations have shown to impact various aspects of education including cost-effectiveness, students' motivation and examination success, the learning of complicated systems, effective time-management, and security; they also have been associated with notable improvements in students' attitude to lessons and their academic success (Güvercin, 2010; Tekdal, 2002). Santos (2009) found that flash animations favourably influenced fifth graders' acquisition of learning concepts, and Elmstrom Klenk's (2011) similar research with students had similar results. These findings suggest that animations could have favourable effects in Turkish grammar lessons, which (as we have seen) students tend to consider unengaging and difficult, through visual richness and dynamism, examples of correct pronunciation, and relateability.

According to Arıcı and Dalkılıç (2006: 429) educational software developed via animations enables students to understand lessons more clearly and concretely. Moreover, with the adoption of the Structural Educational Approach in Turkey, visual reading and visual presentation have been included in the first through fifth grade Turkish grammar curriculum. It is worth noting that in the first through fifth grade Turkish-language curriculum, visual reading and presentation are coded as separate learning acquisitions, whereas in the sixth to eighth grade Turkish-language curriculum, listening, speaking, reading and writing skills are all considered part of the acquisition of grammar (Akkaya, 2011: 38). Also, the structural approach is aimed at providing learners with high-level cognitive activities and quality educational experiences. For this reason, the use of animations in grammar lessons could be said to match with the structural approach in general. The techniques learned while creating animations increase creative thinking and develop students' planning and interpersonal skills (Harrison & Hummell, 2010: 24). However, the fact that visual reading and presentation are included in both the first through fifth and sixth through eighth grade Turkish-language curricula suggests that animation, and/or other similar tools, should be deemed an educational necessity.

Purpose of the study

The purpose of the current study is to determine whether the use of animations directed toward the acquisition of phonetics in sixth-grade Turkish lessons has a sustainable effect on students' learning and academic success. Accordingly, it seeks to answer the following research questions:

1. Are there any significant differences between the post-test grades of the students in the experimental and control groups, once their pre-test grades have been controlled for?
2. Are there any significant differences between the retention-test grades of the students in the experimental and control groups?

Method

This 10-week empirical study utilised a pre-test and post-test, control-group model (Karasar, 2003: 97) and was carried out during the 2014-15 school year in Dosteller middle school in Adana Seyhan. Out of the sixth-grade classrooms in the school, class 6-A was randomly selected as the experimental group and class 6-B as the control group. In both groups, the lessons were taught by the respective classes' usual teachers, and according to the lesson plans in the Turkish teachers' handbook

and Annual Plan. The only difference between the treatment of the experimental group and the control group was that didactic comic books were issued to the former, in addition to their regular educational materials.

Study Group

The gender distribution of the sixth graders who participated in the study are shown in Table 1, below.

Table 1.

Gender distribution of the study groups

Sex	Experimental group	Control group
Female	15	14
Male	16	17
Total	31	31

Data-Collection Tool

An auditory achievement test (AAT) was developed by the researcher to determine whether support from animations affected sixth graders' achievement or retention of what they learned in phonetics. Before the AAT was designed, the researchers prepared an indicator table for the acquisition of phonetics, which was divided into 10 categories. Four questions were then written for each acquisition category, resulting in a total 40 questions. Subsequently, a pre-test of the AAT was administered to 124 seventh graders at the same school where the main study would take place. Based on an analysis of which questions the seventh graders answered correctly, answered incorrectly or left blank, the researchers developed an item-difficulty index and a discrimination index along with standard deviations. According to Tan and Erdoğan (2004: 218), any question whose index of discrimination is below 0.20 should be removed, while those with indices between 0.20 and 0.40 should be revised, and those with indices above 0.40 retained without modification. Therefore, 17 of our 40 questions whose indices were below 0.40, and an additional three questions whose indices were above 0.40 were removed from the AAT. Following these changes, the average difficulty index of the 20-question version of the AAT was (p) 0.63 and the discrimination index was estimated as (r) 0.50, indicating that this version would be in practice.

Preparation of the Application Material

The animations aimed at helping sixth graders with the acquisition of phonetics were designed by Ali İhsan Demir, a member of our research team, and shown to two field experts. These experts in turn told the animations referred to the acquisitions.

Data Collection and Analysis

At the outset of the main study, the 20-question version of the AAT was applied as a pre-test to both the experimental and the control group. The same version of the test was also administered to both groups at the four-week and 10-week marks. The middle application of the AAT, i.e., at four weeks, was intended to measure they two groups' retention of the phonetics information they had acquired up to that point, and will hereafter be referred to as the "retention test". Independent T-test analysis of the data obtained during this study was performed using SPSS 17.0 software.

Findings and Interpretations

The results of independent-groups T-tests on the pre-test frequencies of the experimental and control groups are shown in Table 2, below. This table indicates that there were no statistically significant

differences between the test frequencies of the experimental and control groups [$t(38)=-1.301$; $p>0.005$].

Table 2

Independent-groups T-test results for the pre-test frequencies of the experimental and control groups

Groups	n	X	Ss	Sd	Levene Test		t	p
					F	p		
Experimental	20	3.5	3.66	38	0.884	0.353	-1.301	0.201
Control	20	5.0	3.63					
Total	40							

$p>0.05$

Independent-groups T-test results for the post-test frequencies of the experimental and control groups are presented in Table 3, and indicate that there was a statistically significant difference between the two groups [$t(38)=4.761$; $p<0.005$], with the post-test mean frequency of the experimental group ($X=78$) being higher than that of the control group ($X=64.75$). Accordingly, it could be said that, while both groups experienced increases in success, this success was considerably greater when the teaching of phonetics was accompanied by animations.

Table 3

Independent-groups T-test results for the post-test frequencies of the experimental and control groups

Groups	n	X	Ss	Sd	Levene Test		t	p
					F	p		
Experimental	20	78.00	8.01	38	0.302	0.586	4.761	0.000*
Control	20	64.75	9.52					
Total	40							

* $p<0.05$

Table 4

Independent-groups T-test results for the retention-test frequencies of the experimental and control groups

Groups	n	X	Ss	Sd	Levene Test		t	p
					F	p		
Experimental	20	66.00	7.36	38	0.333	0.567	4.753	0.000*
Control	20	54.50	7.93					
Total	40							

* $p<0.05$

Independent-groups T-test results for the retention-test frequencies of the experimental and control groups are shown in Table 4, above. There was a statistically significant difference between the two groups [$t(38)=0.567$; $p=0.000$], with the mean frequency ($X=66$) of the experimental group being higher than that of the control group ($X=54.5$). Therefore, while it can be said that sustainable learning occurred in both groups, the teaching of phonetics accompanied by animations yielded more favourable results.

Discussion and Recommendations

Animation can help learning become essential, rapid and visual. It stimulates a desire to learn on the part of students by presenting educational material via humorous caricatures that prevent it from becoming boring (Özbağı, 1996 and Steven, 1994, both cited in Arıcı & Dalkılıç, YEAR). In Turkey, most research on the educational use of animation techniques has been quantitative, regardless of whether the subject being taught was geography (Çelik, 2007), chemistry (Kolomuç, 2009), physics (Bülbül, 2009), mathematics (Öztürk Taşkale, 2011), Turkish as a foreign language

(Sülükçü, 2011), social science (Aktürk, 2012), or science (Bunce & Gabel, 2002; Daşdemir, 2006; İskender, 2007; Venkataraman, 2009).

Our literature review revealed no prior studies parallel to the present one in terms of the subject matter being taught, with two exceptions: Yılmaz's (2010: 167) research on an animation called the "verb family" used in teaching; and Sancak's (2011) postgraduate thesis on the teaching of the functions of the ablative affix (+dan) to sixth graders using animation techniques.

Our study found no statistically significant difference between the pre-test frequencies of the experimental and control groups, but the results of independent-groups T-tests on the two groups' post-test frequencies did find significant differences between them, with the control group's post-test mean frequency being higher. In other words, there was a measurable increase in subject knowledge among both groups, but this was markedly greater when animations supplemented traditional teaching methods. The data also suggest that animation use increases Turkish middle school students' retention of the grammar information that they learn, perhaps because this technique holds their interest more than normal chalk-and-talk teaching does by itself. In light of our interesting results and the scarcity of parallel studies, more research is clearly needed in the field of grammar learning in middle schools.

It should also be mentioned that the rapid development of computer- and Internet technologies have forced Turkish teachers to develop their own strategies regarding the usage of animations and other technological innovations. Computers can change the flow of teaching, livening up the atmosphere and holding students' attention and interest, especially when course content is delivered via films and animations. However, to maximise the benefits of such deployments of technology and minimise any negative impacts, teachers need to be carefully trained in computer-based education. Students now typically encounter computers before they are five years old (Dede, 2013); Daşdemir (2013: 1298) found that animations provided a different point of view for students and enabled student-centred working atmosphere, thereby improving students' understanding of responsibility and increasing their high-level thinking by allowing them to have solution-oriented approaches to questions. For these reasons, it would be useful for Turkish teachers to keep up with the latest technological developments, including but not limited to educational animations. Specifically, the recommendations of this study data are as follows.

First, because the present study has indicated that the teaching of grammar subjects could be improved via the application of animation techniques, more research should be conducted that is specifically tailored to the application of animation to various types of grammar lessons in middle schools (i.e., not only phonetics); and the age-range of the participants should be expanded to cover fifth, seventh and eighth graders. Second, the range of in-service training courses for middle school teachers should be enlarged to cover the importance and usage of animations.

Theory or practical works could be practised on the effects of basic skills of Turkish language such as reading, writing, speaking and listening.

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Impact of Religion on Turkish Early Childhood Teachers' Factuality Judgments and Their Classroom Practice

Hüseyin Kotaman*
Harran University

Abstract

The purpose of this study is to examine the impact of religion on Turkish early childhood teachers' factuality judgments and reasoning. Participants responded following questions about the story of "Moses's stick": 1) Can Moses run water from a dry fountain just by hitting his stick to the ground? 2) Why, or why not? 3) Would you read this story to your children in your classroom? 4) How would you respond to your children in your classroom if they ask you, "Could Moses flow water from a dry fountain just by hitting his stick to the ground?" Findings revealed that 82.4% of the participants responded to the first question affirmatively, 83% provided religious reasoning for their response, 72% would not read this story to their children and 56% provided religious explanation for question four. In-service education on the nature of science, epistemology, the philosophy of science, the historical development of science, and scientific thinking, through which teachers can acquire scientific attitudes and practice scientific discussions should be provided. Thus, they can internalize science and understand that science is not an isolated discipline that is practiced in universities, but rather, in secular life it is the core of everyday living.

Key words: Early childhood teacher education, teachers' judgments, religion, science.

* Dr. Hüseyin Kotaman received his BSc. Degree in Psychological Guidance from İstanbul University in Turkey. He obtained his Masters and Ph. D. degrees in Early Childhood Education from The Pennsylvania State University at University Park, USA. Currently, he is a faculty member in Department of Child Development at Harran University. He is an active researcher and his research interests include early childhood education, school readiness, emotional intelligence, teacher education, parent education and involvement, educational philosophy.

Correspondence: huskotaman@hotmail.com

Introduction

Most valuable natural sources for countries are their human capita. Therefore, education seems to act as leverage for the development of individual and society. This is especially true for developing countries such as Turkey because we want to close gap between our country and industrialized, developed countries. To achieve this we have to start educating our human capita as early possible and provide scientific education to our human capita.

Generally we can define science as systematic endeavors to help us discover facts of nature and life (Karasar, 2014; Özbek & Kotaman, 2011). Acquiring facts free us from conditions. Therefore, freedom involves attaining laws of nature and rising above conditions (Özbek & Kotaman 2011). For example, if you do not understand gravity you cannot build airplanes. We have to know many other facts and laws to build and travel with an airplane. We discover facts and laws of nature and life through scientific endeavors, which are unique to human kind. Therefore, in order to raise our children to live as humanly as possible, to be themselves, to live their own lives, and to contribute to humanity, we should accept the guidance of science (Kotaman, 2013). We should provide scientific education in which children attain scientific attitudes and behaviors such as being open-minded and skeptical, not accepting anything as a fact without questioning, depending on evidence in one's judgments, being flexible, depending on logical grounds which are supported by evidence in your inferences, and accepting new evidence to modify your inferences (Buaraphan, 2010; Çorlu, & Çorlu, 2012; Tanel, 2013; Yurt, & Demiriz, 2014) for our children.

Scientific education should start as soon as possible because several studies (e.g. Abbott-Shim, Lambert, and McCarty 2003; Lee et al. 1990; Mckey et al. 1985) have revealed positive impacts of quality and comprehensive early education on children's cognitive, socio-emotional and physical development. Children cannot acquire scientific attitudes, behaviors and concepts by themselves because they are abstract, complex, global and systematic (Vygotsky, 1998). Therefore, the presence of someone more competent than the learner in the learning environment is needed. A competent person can turn an unintentional process into an intentional one (Bodrova, & Leong, 1996; Karpov, & Haywood, 1998). In early childhood education this person is the teacher. Science needs proof. Scientific judgment has to be proven in a scientific way (Dawkins, 2008). For example, we can prove gravity and understand mathematical (abstract) formula of gravity. We know that gravity is valid for everyone. Therefore, we do not believe illusionists even when we see them flying. However, the abstraction capacity of children is limited; they cannot fully recruit either inductive or deductive reasoning to sustain their theories (Kuhn, 1999; Kuhn, & Pearsall, 2000; Legare, 2014). Therefore, children still heavily rely on the information provided by adults and perceive those entities which adults (parents, teachers) encourage them to believe in as real (Fender, & Crowley, 2007; Harris, 2007; Piekny, & Maehler, 2013; Sharon & Woolley, 2004). Teachers, especially early childhood teachers are role models and a source of reliable information for children (Cote, Japel, Sequin, Mongeau, Xu, & Tremblay, 2013; Cabell, Justice, Piasta, Curenton, Wiggins, Turnbull, & Petscher, 2011). Many studies have revealed the positive impact of quality teacher on children's development (NICHD, 2002; Croninger, Rice, Rathbun, & Nishio, 2007; Unutkan, 2007; Kiuru, Aunola, Torppa, Lerkkanen, Poikkeus, Vilijaranta, Lyyra, Leskinen, Tolvanen, & Nurmi, 2012). Some studies revealed that good teaching can compensate for the negative impact of inappropriate parental practices (Kiuru, et al., 2012). Therefore, quality early childhood education that is conducted by quality early childhood teachers is especially important for disadvantaged children coming from families with low socio-economic (SES) status (Yurt, & Demiriz, 2014; Fontaine, Torre, & Grafwallner 2006; Levenstein, Levenstein, & Oliver 2002). Especially for children coming from disadvantaged families, early childhood teachers are the only sources children can acquire scientific attitudes, behaviors and concepts. Therefore, early childhood teachers should set good examples with their scientific attitudes and behaviors toward children. Teachers should be consistent in their attitudes, behaviors and answers.

Piekny and Maehler (2013) found that if evidence children receive from outside is perfectly consistent with each other, children can reason correctly about the outcome of the process. For example, if children see ten pictures of different children who chew gum and have tooth decay, they are able to reason that the gum causes tooth decay. However, if there is non-covariation among evidence, for example, among ten children who are chewing gum; if two of them do not have tooth decay, children could not actualize the same reasoning process. In another study, Croker and Buchanan (2011) have found that prior knowledge affects children's scientific reasoning process. Children who are younger than five years old tend to hold onto their prior knowledge when they encounter new information that is inconsistent with their prior knowledge. They are not capable of considering new information and working on it (Croker, & Buchanan, 2011). These studies revealed that children's scientific thinking processes depend upon outside factors. There should be consistency in outside factors to support children's scientific thinking development. Therefore, teacher explanations about factual events and scientific facts have to be consistent to support children's scientific thinking development.

Science aims to understand, explain the world and control events (Karasar, 2014). Religion has similar function. Both disciplines aim to assist human beings in their endeavor to understand and explain life. Harris and Koenig (2006) suggested that children conceptualize unobservable scientific and religious entities in a similar fashion. Although their subject matter and aims are the same, science and religion have a fundamental difference: religion uses the concept of God to understand and explain everything that is unknown to the humans. Wenger (2001), for instance, claimed that religious adults employed God as a "wild card" to explain all phenomena that are inaccessible to them. Wenger's work interestingly shows that preschoolers come up with fewer divine explanations compared to third graders, who in turn provide fewer explanations attributed to God compared to college students. In other words, God is not a particularly strong factor in the reasoning process of small children because of the highly abstract and complex nature of the divine. Unless children are specifically instructed about divine matters, they are not likely to resort to God in their reasoning. One of Wenger's (2001) findings was that those college students who displayed a higher degree of religious belief provided fewer scientific explanations for specific events compared to those who had a lower degree of religious belief. This may have to do with the fact that explanations based on any form of the divine will have the power to explain everything without necessarily resorting to physical evidence, which inhibits scientific thinking. On the other hand, Woolley and Van Reet (2006) argue that the presence of a scientific environment facilitates the factuality judgments of four and five year-olds. In another study, Vaden and Woolley (2011) have found that children originating from less devout families came up with more natural explanations than children that had religious parents. In summary, the complex and abstract nature of the concept of God leads kindergarten children to avoid using it in forming their factuality judgments unless they are inculcated with religious sentiments and information by adults. Hence, the predominance of religious reasoning may thwart scientific thinking. Therefore, it is reasonable to expect teachers to explain happenings and to answer children's questions in a scientific manner rather than a religious one. Thus, teachers would lay foundations for development of scientific attitudes, behaviors and thinking skills.

As we mention above, development of reasoning and scientific thinking are affected by environmental conditions. Children have difficulties making scientific inferences when there is inconsistency among outside data. Therefore, teachers should always be loyal to scientific attitudes and facts while they are assisting children with explanations and answers. For example, when children ask their teachers about people having conversations with animals, teachers should explain to them that this cannot happen in real life. However, if a teacher gives a scientifically inconsistent response such as, "Normal people cannot speak with animals, but God bestows some special powers to prophets, therefore they can speak to animals," such an inconsistency would harm children's reasoning process and scientific thinking development (Croker, & Buchanan, 2011; Piekny, & Maehler, 2013). Inconsistency between religious and scientific reasoning can harm the development of children's scientific attitudes and scientific thinking skills. Therefore, teachers should embrace guidance of science throughout the whole education process.

In summary, because of their limited abstraction capacity, children cannot fully recruit scientific methodology and scientific reasoning to sustain their theories. Therefore, they rely on outside information. The outside information should be consistent. Teachers are one of the most influential outside factors in children's lives. This is especially true for children who are coming from disadvantaged environments (Eryaman, 2007; Fontaine, Torre, and Grafwallner 2006; Levenstein, Levenstein, & Oliver 2002). Teachers are role models and reliable sources of information for children. Teachers should promote scientific attitudes, behaviors and thinking in their classrooms. In order to be consistent they should rely on scientific reasoning in their explanations and judgments rather than religious reasoning. They should set good examples for their children in terms of scientific thinking and reasoning. This would contribute to the development of scientific thinking skills of children (Dejonckheere, Van De Keere, & Mestdagh, 2010). On the other hand, if teachers display inconsistency when they are answering children's questions about religious miracles or if teachers rely on religious reasoning rather than scientific, they may thwart scientific thinking development of children (Vaden & Woolley 2011; Woolley, & Van Reet 2006). Therefore, it is important to know teachers' responses when they face religious content and questions. It would be beneficial to know early childhood teachers' beliefs about unscientific events for in-service education and teacher education program designers. Thus they can know where to focus on promoting scientific thinking in teachers and prospective teachers. The purpose of this study is to examine the impact of religion on Turkish early childhood teachers' factuality judgments and reasoning. Along with the main purpose, the following sub-questions will be explored in this study.

1) Are Turkish early childhood teachers' factuality judgments about religious miracles related to their reasoning type (natural, religious, uninformative) about their judgment?

2) Are Turkish early childhood teachers' factuality judgments about religious miracles related to their decision on reading same story to their children (students)?

3) Are Turkish early childhood teachers' factuality judgments about religious miracles related to how would they reason their answer if their children (students) ask them about the same miracle?

Several studies have been conducted in Turkey on teachers' scientific attitudes and behaviors (Cavas, and others, 2013; Tanel, 2013; Topcu, 2013; Turkmen, 2011). These studies used attitudes scales such as Science Teaching Attitude Scale to measure participants' scientific attitudes. These scales do not question the impact of religion. Therefore, scientific attitudes of teachers or prospective teachers who participated in these studies were always strong. Only Topcu (2011), in his study in which he investigated Turkish elementary student teachers' epistemological beliefs, found that although all teachers asserted that knowledge changes, they also frequently referred to the unchanging nature of religious knowledge. He explained this finding by acknowledging Turkish society's Muslim characteristics. Therefore, any inference that we would make about scientific attitudes or behaviors of prospective teachers without considering the impact of religion would be misleading. This study is of great importance because of its originality, currency and relevance.

Methodology

Participants

This study's population included Turkish early childhood education teachers from thirty different cities in Turkey. A hundred and eight early childhood teachers participated the study. Of these teachers, 14 were male (13%), and 94 were female (87%). Participants' ages ranged from 19 to 45, with a mean age of 26.22 (SD= 4). Professional experience of the participating teachers ranged from 1 to 13 years, with a mean of 3.75 (SD= 2.74) years. Of the 108 teachers 85 (78.7%) had four years or less teaching experience, 23 (21.3%) had more than four years of teaching experience.

The Procedure

The investigator publicized the purpose of the study via social media (facebook). The investigator also visited several kindergartens that s/he had been conducting other studies. Teachers who wished to participate then contacted the investigator, who provided them with a detailed description of the research process. Participants gave informed consent. Participants responded four questions about a religious story “Stick of Moses”.

In Islam prophet Moses also accepted as prophets and they are considered as Muslims. For a Muslim prophet Moses were Muslims. According to Koran Islam Prophet Hz. Muhammed did not present miracles. Therefore, investigators recruited stories of prophet Moses. In this story Moses is hitting this stick on the ground and water starts to flow from a dry fountain. Early childhood teachers read the story and responded to the following questions: 1) Can Moses run water from a dry fountain just by hitting his stick to the ground? 2) If yes, why? If no, why not? Please explain your answer with one sentence. 3) Would you read this story to your children in your classroom? 4) How would you respond to your children in your classroom if they come and ask you “could Moses flow water from a dry fountain just by hitting his stick to the ground?” Please explain your answer with one sentence.

Participants received 2 points for a negative response (no he cannot flow water from a dry fountain, and no I would not read this story to my children) to first and third questions and 1 points for an affirmative (yes he can flow water from a dry fountain, I would read this story to my children) response. For assessing the responses received from question #2, the investigator adapted the categories set forth by Vaden and Woolley (2011), which are 1) *uninformative* responses (e.g. no answer, “I don’t know,” or otherwise illogical/uncodable responses), 2) *natural* responses (e.g. “there are scientific methods to find water,” and “these things do not happen in real life”) 3) *religious (magical)* responses (e.g. “God bestows special powers to prophets). For assessing the responses received from #4, the investigator added a fourth category, 4) *literary* responses (this is a story and such things happen in the stories) and a fifth category, 5) *avoiding* responses (I would change subject). Two arbiters independently coded each response. An interrater reliability analysis using the Kappa statistic was performed to determine consistency among raters. The interrater reliability for question #2 the raters was found to be Kappa = 0.94 ($p < .001$) which yielded a very strong agreement. The inter-rater reliability for question #4 the raters was found to be Kappa = 0.90 ($p < .001$) which yielded a very strong agreement. Disagreements were resolved through discussion.

Results

A series of chi-square tests of independence were performed to examine the relationship between teachers’ factuality judgment about Moses action and their reasoning for their answers, their classroom application and how would they respond to their children if their children ask them about religious dilemma. The results of descriptive statistics regarding the factuality judgment (run water from a dry fountain just by hitting his stick to the ground) and reasoning (why or why not?) were as follows: Of the 108 participants 89 (82.4%) responded to the first question for “Moses Stick” affirmatively and 19 (17.6%) of the participants responded negatively. Of the 108 participants 90 (83%) provided religious, 17 (16%) natural and 1 (1%) uninformative reasoning for their factuality judgment. The results of descriptive statistics regarding #3 (would you read this story to your children in your classroom?) and #4 (how would you respond to your children in your classroom if they come and ask you, “could Moses flow water from a dry fountain just by hitting his stick to the ground?) were as follows: Of the 108 participants, 31 (29%) responded to the third question affirmatively and 77 (71%) of the participants responded negatively. On the other hand, of the 108 participants provided 6 (5.5%) uninformative, 17 (15.8%) natural, 62 (57.4%) religious, 4 (3.7%) literary and 19 (17.6%) avoiding responses respectively.

Table 1: *Cross-tabulation of Factuality Judgments and Reasoning*

Can Moses make fountain run water	Reasoning				χ^2	Φ
	Uninformative	Natural	Religious	Total		
Yes	0	1	88	89	88.02	0.0001
No	1	16	2	19		
Total	1	17	90	108		

Table 1 shows the results of chi-square tests calculating the relationship between factuality judgment (question #1) and participants' reasoning for their factuality judgment (question #2). The relationship between these variables was significant $\chi^2 (2, N = 108) = 88.02, p = 0.0001$. Among 89 participants who accepted factuality of scientifically untenable act 98.8% of them provided religious reasoning for their responses, only 1.2% of them provided natural reasoning. Among 19 participants who do not accept factuality of scientifically untenable acts 89% of them natural, 10% provided religious and 1% provided uninformative responses respectively. It is reasonable to assert that participants who recruited religious reasoning displayed greater tendency to accept factuality of scientifically untenable acts than participants who recruited natural reasoning.

Table 2: *Cross-tabulation of Factuality Judgments and Teacher Application*

Can Moses make fountain run water	Would You Read This Story to Children			χ^2	Φ
	Yes	No	Total		
Yes	28	61	89	.17	0.264
No	3	16	19		
Total	31	77	108		

Table 2 shows the results of chi-square tests calculating the relationship between factuality judgment (question #1) and participants' classroom application (question #3, reading Moses's story in the classroom). The relationship between these variables was not significant $\chi^2 (2, N = 108) = .12, p = 0.264$. Among 89 participants who accepted factuality of a scientifically untenable act, 68.5% of them responded negatively and 31.5% positively to the third question which was about reading Moses's story in the classroom. On the other hand, among 19 participants who do not accept factuality of scientifically untenable acts, 84% of them responded negatively and 16% affirmatively to the same question. It seems that most of the participants are aware that the abstraction capacity of early childhood children are not developed enough to understand religious stories. Although it was not asked, 15 participants mentioned that the concept that was covered in Moses's story was beyond children's abstraction capacity.

Table 3: *Cross-tabulation of Factuality Judgments and Teacher Response to Children*

Can Moses make fountain run water	How Would You Explain if Children Ask					Total	χ^2	Φ
	Uninformative	Natural	Religious	Literary	Avoiding			
Yes	6	4	59	2	18	89		
No		13	3	2	1	19	53.77	0.0001
Total	6	17	61	4	19	108		

Table 3 shows the results of chi-square tests calculating the relationship between factuality judgment (question #1) and participants' explanations for children if children in their classroom ask about the factuality of the act of Moses (question #4). The relationship between these variables was significant $\chi^2 (2, N = 108) = 53.77, p = 0.0001$. Among 89 participants who accepted factuality of scientifically untenable act provided 6.7% uninformative, 4.5% natural, 66.3% religious, 2.2% literary, 20.3% avoiding responses respectively. Distribution of the responses of the 19 participants who did not accept factuality of scientifically untenable act was as follows: 68% natural, 15.8% religious, 11% literary and 5.2% avoiding. It is possible to claim that there is a relationship between teachers' factuality judgment and how they would respond to children's questions about miraculous religious matters. Teachers who accepted factuality of religious miracles provided religious explanations much more than teachers who did not accept factuality of religious miracles.

Discussion

Through asking early childhood teachers about their judgment, reasoning and how would they react if they encounter with during their teaching practices regarding a scientifically untenable happening, this study was carried out to examine Turkish early childhood teachers' scientific attitudes in the face of a religious dilemma. To face early childhood teachers with a religious dilemma was necessary because religion contains scientifically untenable acts and deeds such as miracles performed by prophets or God. Therefore, to be consistent in their scientific attitudes and behaviors, teachers should follow the guidance of science even when they face contradiction between science and religion. This is especially important for early childhood children because their abstraction capacity does not allow them to fully recruit scientific process and to run their own inductive and deductive reasoning process (Piaget, 1928; 2006; Vygotsky, 1995). Therefore, children cannot scientifically prove the facts and learn them by themselves. Children rely on outside data about the factuality of acts, deeds, happenings and concepts (Fender, & Crowley, 2007; Harris, 2007; Piekny, & Maehler, 2013; Sharon & Woolley, 2004). Studies have revealed that prior knowledge affects children's scientific reasoning and when outside data is perfectly consistent with other data, children can reason correctly (Piekny, & Maehler, 2013; Croker, & Buchanan, 2011). Therefore, teachers should be consistent in their attitudes, behaviors and responses. Teachers are not just transmitters of knowledge; Teachers are role models for children, especially for very young children. Teachers' beliefs, attitudes, and behaviors affect their students' attitudes and behaviors (Chan, 2006; Denham, Bassett, & Zinsser, 2012; Goleman, & Guo, 1998). For example, if a teacher's response to children's factuality questions about a scientifically untenable act differ according to the character of the story, this would thwart development of children's scientific attitudes and behaviors because there will be inconsistency between teachers' responses. Findings revealed that the vast majority of the participating early childhood education teachers accepted factuality of scientifically untenable acts because of religious reasons. Teachers used religious reasoning to justify their responses. Furthermore, most of them stated that they would make religious explanations to their children if their children ask them a factuality question about a religious miracle. Therefore, it is reasonable to claim that when these teachers encounter a scientific fact that contradicts with their religious belief, they

would tend to stick with their belief rather than learning the new scientific fact. Favoring religious belief and accepting it as a fact without any proof contradicts with scientific attitudes and behaviors we mentioned earlier such as being open minded and skeptical, not accepting anything as a fact without questioning, depending on evidence in one's judgments, being flexible, depending on logical grounds which are supported by evidence in your inferences, and accepting new evidence to modify your inferences (Buaraphan, 2010; Çorlu, & Çorlu, 2012; Tanel, 2013; Yurt, & Demiriz, 2014).

In summary for these two main reasons, these findings are alarming. First of all, kindergarten children trust their teachers (Thornberg, 2008; 2007). Teachers are role models for their students. Therefore, their inconsistent behaviors could distort trust in the teacher-student relationship and promote the occurrence of negative behaviors such as lying (Thornberg, 2008, 2007). If teachers advocate scientifically-untenable acts and explain them without evidence or any scientific reasoning, they would set a negative example for children in terms of development of scientific attitude and thinking. Teachers' consistency is also critical for the development of the scientific reasoning process of children because children depend on outside information and prior knowledge in their process of making factual judgments (Croker, & Buchanan, 2011; Piekny, & Maehler, 2013). Dejonckheere, Van De Keere, and Mestdagh, (2010) suggested that teachers should teach children a scientific thinking circle that involves rephrasing the problem, thinking about different solutions and selecting solution strategies, and focusing on the relationship between results and operations, and the problem formulation established in the first step. If inconsistency occurs between teachers' behaviors and what they teach, it would be harmful for children's scientific development (Croker, & Buchanan, 2011; Piekny, & Maehler, 2013).

Studies have revealed that the presence of a scientific environment facilitates the factual judgments of young children, and the reverse was true for a religious environment (Woolley & Van Reet, 2006; Vaden & Woolley, 2011). One of the most effective environmental factors in children's development is teachers. Teachers are one of the basic components of education. The impact of teacher quality (characteristics) on children's development has been very well documented (Cote, et al., 2013; Cabell, et al., 2011; Denham, Bassett, & Zinsser, 2012; Unutkan, 2007). The most effective component of quality early childhood education is qualified early childhood teachers (Croninger, Rice, Rathbun, & Nishio, 2007). Some studies revealed that good teaching can compensate for the negative impact of inappropriate parental practices (Kiuru, et al., 2012). Therefore, as early intervention studies have revealed, good quality early childhood education that is conducted by good quality early childhood teachers is especially important for disadvantaged children coming from families with a low socioeconomic (SES) status (Yurt, & Demiriz, 2014; Abbott-Shim, Lambert & McCarty 2003; NICHD, 2002; Lee et al. 1990). The average education per person in Turkey is six years (Benmayor, 2013). In Turkey 8% of women are still illiterate. In 2014 Turkish Statistical Institute conducted a survey about religious tendencies of Turkish people. Their findings yielded that 99.2% of the Turkish public considered themselves as Muslim. Sixty-five percent of the participants stated that "piety determines my life" (TUİK, 2014). When we put all these facts together, we can see that environment in Turkey is dominantly religious. In many cases, kindergarten will be the first place for children where reasoning would depend on science rather than religion. However, if teachers' and parents' religious reasoning promote each other, children would learn the superiority of religion over science. Although most of the participants stated that they would not read Moses's story (religious story) in the classroom, 56% of the participants reported that they would provide religious reasoning if children ask them about religious miracle happen in the religious. Furthermore, 18% of the participants noted that they would avoid responding children's questions in such a situation. This finding is consistent with studies revealed that teachers' beliefs about science affected their classroom practices (Buaraphan, 2010; Heisner, & Lederberg, 2011; Tsai, 2007; Turkmen, 2013). Findings yielded that in many cases Turkish children lack scientific perspective when they encounter a religious story.

As we mentioned above, teachers are role models for children. For a five year old child who is living in a disadvantaged environment, his or her early childhood teacher might be the only source of

modeling scientific thinking, the only person in whom he or she can observe scientific attitudes. Therefore, early childhood teachers should set good examples with their scientific attitudes and behaviors to children.

In summary, this study revealed that Turkish early childhood teachers' religious beliefs have impact on their factuality judgments and how they explain phenomenon. Early childhood teachers preferred religious reasoning instead of scientific in the face of a religious dilemma. Several studies have shown that through intervention it is possible to influence prospective teachers' scientific attitudes and perceptions (Çorlu, & Çorlu, 2012; Tanel, 2013). Therefore, it is reasonable to suggest providing in-service education on the nature of science, epistemology, the philosophy of science, the historical development of science, and scientific thinking, through which teachers can acquire scientific attitudes and practice scientific discussions. Thus, they can internalize science and understand that science is not an isolated discipline that is practiced in universities, but rather, in secular life it is the core of everyday living. With these educations teachers can also realize the possible impacts of their attitudes on children's acquisition of scientific attitudes and behaviors.

Limitations and Future Studies

There are several limitations of this study. This is a self-report study. Although we can make inferences according to our data, we do not know our participants' actual behaviors. Therefore, future studies should try to reach observational data that will be gathered in a real kindergarten setting. Only 108 early childhood teachers participated the study. Even though nothing had been asked about their identity, many teachers shy away from the study just because it contains a religious story. Turkey is a secular country. However, since 2002 an Islamist government is in power. Hence, the past decade has witnessed an increasing tension between secularists and anti-secularists, which complicates the process of identifying the religious beliefs of individuals. Teachers are afraid of being a target for both sides. In the future, the study can be conducted with more participants. There are several scales that measure scientific attitudes and the scientific skills of teachers. However, these scales do not question the impact of religion. Therefore, future studies could compare teachers' responses to the scales and religious situations. Experimental and longitudinal studies can compare scientific development of children with religious reasoning versus scientific reasoning.

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Spectators or Patriots? Citizens in the Information Age

Amrita Dhawan*

City University of New York

Abstract

In theory, a strong democracy rests on robust citizen participation. The practice in most democracies is quite different. This gap presents a challenge, which can be narrowed by augmenting civic education to bring it up to date with the current information environment and thus give citizens the opportunity to participate. Robert Dahl's work on democracy provides a model that looks at this problem structurally. He writes about the ideals and the actual institutions necessary for a democracy and if we situate his model in the modern information environment we get a better idea of how to improve civic education. Successful citizen participation in the U.S. relies on two key factors: the ability to winnow relevant information as well as an opportunity to get reliable information from alternative sources.

Keywords: Democracy, citizenship, Dahl, civic education, Greenwald, Blogger, Information, Alternative Sources, Dewey, news literacy

* **Amrita Dhawan** is the chief of User Services and associate professor at City College, City University of New York. Dr. Dhawan received her PhD in Philosophy and Education from Columbia University. Her dissertation was focused on citizen participation and associations.

Correspondence: adhawan@ccny.cuny.edu

Introduction

In theory, a strong democracy rests on robust citizen participation. The practice in most democracies is quite different. This gap presents a challenge, which can be narrowed by reimagining civic education to bring it up to date with the current information environment.

The popular press and academic journals alike lament a crises in democracy. Concurrently, there is considerable literature about the need to improve existing civic education. Mending the existing models of civic education is seen as a way to increase citizen participation to strengthen democracy.

There is, however, a lack of clarity about what is needed to prepare students for civic participation as well as a mismatch in what the curriculum currently offers and what civic participation requires. Much college instruction is still delivered in traditional lectures and is done by factual recall. The emphasis is on content and formal education. Also, changes in the information environment and their relation to changes in higher education, to political institutions or to lifelong learning are not taken into account. Nor is there a close examination of the current political institutions in the U.S. to study how civic education could be situated within them. Most civic educators agree that students need to understand and to care for the public good and that civic education needs to be reimagined but there is little consensus on how to achieve this.

The important question is how to get citizens to participate more in American democracy and not how to incrementally improve the existing model of civic education. The questions of what role the public should play in a democratic society and who is responsible for civic literacy have not clearly been answered by anyone. There is little evidence that civic education as it stands works.

This paper suggests the problem is structural and cannot be solved by higher education alone, though we need to update higher education as well. Two components need to work in tandem. First, government support for alternative and reliable sources of information is necessary for effective participation by citizens. Second, higher education can supplement this by teaching students skills that help them be fluent in the information world. The model of government-supported information gets strong support from the empirical work of Robert Dahl (1998, 2006), who wrote extensively on almost every aspect of democracy in the U.S. His model is viewed in the current information environment of the U.S.

Information is a political resource and informed citizens with support from the state can help counter existing challenges to democracy. It is necessary to have institutions that provide reliable and alternative points of view. The burden of obtaining good information should not rest on citizens alone. The government has a responsibility to support it. The British BBC and Finland's YLE are based on this premise.

Dahl's theory highlights five institutions that are necessary to a democracy and one of them is the necessity of "alternative sources" which is essential for effective participation and enlightened understanding by citizens. Alternative sources ensure that citizens get a point of view that is an alternative to the monopoly view. Dahl situates citizen participation squarely within the theory and practice of democracy. Political equality is the foundation of democracy and Dahl uses the 'principle of intrinsic equality' to justify it. According to this principle, no human being is superior to another and the interests of each person are equally important. Dahl points out that it is more important to think in terms of political equality than 'democracy.' Democracy is the system that rests on our attempts to attain 'political equality.' The demands for increased participation have led to existing political institutions of democracy in the U.S. and rely on active engagement by citizens.

It is useful to study Dahl's writings because they examine the actual institutions of representative democracy in the U.S., and relate them to the ideals we hold dear. His work allows us to

visualize and analyze citizenship and civic education in context of the gap between the ideals and reality of democracy and the challenge this represents. It places citizenship in a three dimensional context, we see it in relation to the history, politics and economics of existing political institutions. We see the problem as one that is far greater than that of school curriculum. It is a structural problem that is related to the evolution of our institutions and is not that of 'higher education' or curriculum alone. What we teach in school should supplement deeper, structural efforts at supporting citizen participation.

Second, a new curriculum of information skills for citizens is needed. Not one that has evolved from current civic literacy programs but one that is designed specifically for the modern information world.

Given the rapidly evolving information climate, skills that emphasize the process of acquiring reliable information need to be emphasized more than teaching specific content. Citizens should learn how to separate digital wheat from chaff in order to deal with the overwhelming amounts of information they are exposed to. This idea is in tune with changes in higher education in which the process of finding relevant information is emphasized rather than knowing specific content. Even experts cannot master all relevant content in their area of expertise. Citizens need to know how to find reliable information and where to look for it. Information skills emphasize a process and so are often overlooked because they don't belong to a specific academic discipline. Such skills serve students in all aspects of life.

The old model of civic education cobbled together an ad hoc combination of civic literacy in the classroom with arbitrary media information. The model suggested in this paper operates in the new information environment. It hinges on government support of alternative sources with schools and colleges supplementing this by teaching the right skills to navigate information successfully. Instead of focusing on specific content the focus would be on the process of evaluating reliable information. This combination will help strengthen democracy more than the existing model.

The excesses of representative democracy and income inequality are two challenges that figure prominently in current complaints about democracy. Citizens feel helpless in the face of these large challenges. The current models of civic education attempt at correcting school curricula alone but this solution seems superficial and inadequate. Dahl's theory enables us to see citizen participation as a fundamental problem, which cannot be solved by curriculum or citizens alone but needs essential help from the government. Such an approach, supplemented by a school curriculum that provides the skills to evaluate the information that surrounds us, is this paper's proposed model to correct the inadequacies of citizen participation today. Such an improvement is sorely needed to guarantee a strong U.S. democracy in the years to come.

Literature Review

Is Democracy in Decline?

Recent articles on the state of democracy and on civic education separately emphasize the need to improve both. John Micklethwait, chief editor of the *The Economist*, points to the great dissatisfaction felt by people, "Of all the predictions to be made about 2015, none seems to be safer than the idea that across the great democracies people will feel deeply let down by those who lead them." He goes on to list problems such as the failure of democracies to get things done which will impact other features of an open society such as the freedom of the press. According to him a majority of Americans have told Gallup that they are dissatisfied with the way they are governed, "with the numbers of those fed-up several times climbing above 80% (higher than during Watergate)" (Micklethwait, 2014).

He goes on to list two debates, which he thinks should take place. One is about the reform of the state, which is a generation behind the private sector in terms of productivity and technology. The

other debate should be about democracy itself, which is beginning to look increasingly undemocratic, especially with the rise of money politics. Yet in spite of all its deficiencies, democracy “is still more flexible and fair than any alternative.”

Tony Blair in an op-ed for the New York Times titled, “Is Democracy dead?” claims that the values of democracy may be right but it is failing to deliver. It is essential to update government systems to modernize them. He suggests, “The answer to this democratic malaise may be partly a change in the relationship between governing and governed...The simple right to vote is not enough. Systems need to deliver results for the people. If we truly believe in democracy, the time has come to improve it” (Blair, 2014).

The twenty-fifth anniversary issue of *The Journal of Democracy* (2015), a journal that explores all aspects of democracy, is dedicated to the topic, “Is Democracy in Decline?” It makes a useful distinction between two aspects of democracy. The first is that which actually takes place in a country, the empirical facts which we can observe. The second is more subjective; it concerns the ideal of democracy, attraction to the rights and freedoms it affords us. It is in the first dimension that the decline is most discussed.

There seems to be a consensus among scholars and politicians that democracy as an ideal is still very attractive but democracy as a practice is in decline. As an ideal, “it is self-rule by citizens possessing equal rights and having equal influence over the choice of leaders and the conduct of public affairs” (Schmitter, 2015, p.32). However, the reality of democracy’s political process is in transition and the new form it will take seems unclear.

State institutions have not kept up with popular demands for accountability. Overall “there has been a remarkable worldwide progress in democratization over a period of almost 45 years, raising the number of electoral democracies from about 35 in 1970 to well over 110 in 2014” (Fukuyama, 2015, p.11). Fukuyama calls it a failure of institutionalization that states have not kept up demands for accountability. Democratic accountability is a basic institution of a modern liberal democracy, it “seeks to ensure that government acts in the interests of the whole community, rather than simply in the self-interest” of the representatives (Fukuyama, 2015).

Dissatisfaction with a lack of accountability and transparency by representatives is a common theme. Democracy is an improvement on authoritarian rule because it moves away from the idea of the rulers and the ruled. The idea of a select few who may have the knowledge, skills, expertise or virtue to govern or rule is morally and practically at odds with the values of democracy (Dahl, 1998). This writing runs parallel to a body of writing urging reform of civic education in the U.S.

If democracy is to work it requires a certain level of political competence from its citizens. Citizens need to understand important issues, express their views and discuss political matters. Ideally, they would have a strong voice in the final agenda of the government. Being aware of important issues and seeing past the daily chatter is the first step towards active citizenship

Civics Instruction

In the last few decades a lot of attention has been paid to improving civic education and engagement. Several articles, reports, and efforts discuss the role of higher education in offering a new kind of civic education (Melville, 2013; NYT; Boyte, Elkin, 2014). The prevalent view is that the American educational system needs to solve this problem.

Different solutions are presented but most civic educators frame the problem as one of education (Melville, Dedrick, Gish, 2013). Most educators agree that students need to understand the issues, know how to deliberate and discuss and to care for the public good. Yet there is little consensus or structure on how to do this, for several reasons. For one, civic education does not belong to any one academic discipline, so it is hard to find a place for it in the curriculum. (Melville).

Another is that the key terms of civic education are ambiguous so there is debate about the definition of terms such as ‘civic engagement’ and ‘civil society’ (Melville, 2013).

A number of states have mandated classes on civics instruction. The Massachusetts Board of Higher Education recently mandated that civics instruction be a key component for learning at the state’s colleges and universities. Florida, Tennessee, California and Illinois have local projects aimed at improving civic education in schools.

The American Democracy Project for Civic Engagement is a national initiative that implements a solution in collaboration with the New York Times. 228 institutions from the American association of State Colleges and Universities are participating in this project to promote civic engagement in the U.S.

Some feel that civics instruction could help reverse low voter turnout (Porter, 2014). There is a strong sense that we must do something to be more functional as a nation and at the community level. A coalition in seven states has launched a movement to have students pass a citizenship test. Others question this method claiming that memorizing to pass a test is not the right solution because citizens need knowledge that will help them be active participants (Porter, 2014).

“What little civics teaching is left only allows students to become better informed spectators – learning names, dates, the three branches of government” writes Senator Bob Graham, (Melville, 2013, p.259). Traditional civic education focuses on an understanding of the traditional structure of the government, such as how the government established by the constitution embodies the purposes, values, and principles of American democracy. Such questions have little to do with the day-to-day lived reality of most citizens. Students need to be familiar with current issues so they can discuss them and engage with public life.

A key concern is the “the excessive dominance of elites. Elites have expertise, so most people are content to allow a certain level of elite domination,” (Boyte et al., 2014, p. 210) but this needs to be balanced. People are capable of creating and outlining their ends as well as actively defining the best means of attaining them, a task too often left to a self-selected few

Even in older established democracies, the health of democracy suffers when people do not have a say in deciding the ends to be pursued. If experts and representatives make the final decisions and citizens do not have access to relevant information and feel left out of important decision-making, democracy declines. Reflecting on the importance of political equality in a democracy helps us understand how this decline occurs.

Theory of Democracy

Why Democracy?

Our definition of democracy depends on our values but in general Americans desire democracy because it guarantees certain basic rights and freedoms. It allows an opportunity for autonomy and self-fulfillment.

Political Equality is the Foundation of Democracy

If we make two fairly self-evident assumptions it is hard to refute a case against political equality and democracy (Dahl, 2006):

a) The assumption of intrinsic equality. The moral judgment that no human being is superior to another and the good and interests of each person should be equally considered.

b) If the above assumption is true it raises the question relevant to the government of a state, about who is best qualified to determine what the best interests of a person really are. It leads to the statement that no one is so much better qualified than another that s/he be given complete and final authority over the government of a state.

These two claims offer strong support for the idea that political equality is desirable in governing a state. Democracy is the political system that would best help bring it about because it is the only system that derives its legitimacy and institutions from the foundation of political equality.

This is logically coherent but in the reality of representative democracy, representatives can adopt the role of superior or ruler. The person contracted to represent a citizen's interests can often be the one deciding what those interests are even if they are contrary to the desires or interests of citizens.

Criteria for Political Equality and Democracy

Dahl outlines six criteria to ensure that interests are treated equally: availability of effective participation for all, voting equality, informed understanding, final control of the agenda and finally an accompanying right with each of the criterion above, as it is not enough to say that one should be able to vote without also giving the political right to vote. These are criteria for an ideal democracy and it is possible that no country may be able to achieve them all.

The Practice of Democracy

The criteria above constitute an ideal democracy but the democratic reality in each country is different. Institutions in a country evolve in response to the local history, traditions and culture. So for example, democracy in a city in India would be very different from democracy in a small village in England.

Representative democracy and equality have grown in the last few centuries and have led to modern institutions. In 1900, only forty-eight countries were independent and of these, only eight had the basic institutions of representative democracy, and only in New Zealand could women vote. Those original eight constituted about ten percent of the world's population. A hundred years later the political institutions of democracy, including universal suffrage, exist in about eighty-five countries and include roughly sixty percent of the world's population (Dahl, 2006, p.23).

Institutions Necessary to Every Democracy

Each country has its own political culture yet all representative democracies have certain institutions in common. One can list these by examining the history of countries in which institutions have evolved in response to a demand for participation in political life, as well as by outlining the requisite criteria that could allow a non-democratic country to qualify as a democracy. One can also examine countries that are currently democratic.

Dahl uses these methods to reveal the following five institutions that are common to all democracies: elected representatives, frequent elections, universal eligibility to all citizens to run for office, free expression, availability of independent information and the right to participate in autonomous associations such as political parties.

Mapping Actual Institutions to the Ideals of Democracy

The following figure (Dahl, 2005, p.193) clearly maps the relationship between the criteria for an ideal democracy and the actual institutions necessary for a democracy.

Figure 1. *Why institutions are necessary*

In a unit as large as a country, these political institutions of polyarchal democracy are necessary to satisfy the following democratic criteria.

Institution	Fulfilled Criteria
Elected representatives	Effective participation Control of the agenda
Free, fair and frequent elections	Voting equality Control of the agenda
Freedom of expression	Effective participation Enlightened understanding Control of the agenda
Alternative information	Effective participation Enlightened understanding Control of the agenda
Associational autonomy	Effective participation Enlightened understanding Control of the agenda
Inclusive citizenship	Full inclusion

The institutions of ‘Free Expression’ and ‘Alternative Information’ enable citizens to be informed and to deliberate in public. Levels of participation can vary widely. One participates when one votes but it is a passive form of participation, in contrast to more active forms of participation such as setting the agenda for large policy decisions. Being informed is the first step towards active participation so it is important that citizens have access to institutions that offer an alternative point of view to the monopoly view, often controlled by the reigning government.

Citizens are entitled to seek out independent sources of information from other citizens and newspapers. Edward Snowden brought the issues of privacy, mass surveillance and the balance between national security and information privacy to the public realm. This was an alternative point of view to that provided by the government. For this, he has been called both a patriot and a traitor and is charged with violating the *Espionage Act* and for theft of government property. However, the publications that reported the leaks, *The Guardian* and *The Washington Post*, received the 2014 Pulitzer Prize for Public Service. Snowden claims he was motivated by patriotism because he did not want to see his country sliding into oligarchic rule. His motivations and methods are questioned but he provided a public service by stimulating discussion and needed change (Greenwald, 2014).

Being well informed can help citizens articulate themselves, achieve more equality and have stronger institutions.

Challenges to Democracy and Political Equality

There are several barriers to achieving political equality. Difficulty in assessing equality, the unequal distribution of political resources, the size of the nation state, failings in representation and expertise, the dominance of market economies and severe crises in a country, can often all work together to obscure and hinder said equality. Active citizens can mitigate some of the damaging effects in a way that passive subjects cannot.

Difficulty in measurement. When a country slides from ‘more’ to ‘less’ democratic, it is hard to quantify and thus track. This lack of quantification means that when a democracy curtails civil

liberties, for instance, an objective link to a decline in that democracy is difficult to universally establish. These gradations are hard to assess or quantify and if one is not able to adequately name or assess them it is hard to analyze underlying problems or suggest solutions.

In times of stress to a nation's security the president can appropriate powers that approximate those of a traditional ruler in a non-democratic state. In such an instance, an external threat can be used to control citizens and erode their basic rights and freedoms. Knowledgeable citizens are more likely to recognize these events and less likely to have their basic liberties eroded.

Representative democracy: A class of experts, specialists and guardians. In a democracy, citizens need final control over the decisions that impact them most, even if they relegate some control to their representatives. This is an important distinction. Our values determine how we act, and in a democracy the values of the citizens should determine the ends and the course of action. The experts may have superior factual, scientific knowledge and subject matter expertise but they are delegates. Empirical evidence and data are important but most decisions are often a choice between competing values.

John Dewey, the philosopher and educator, wrote about educating for a democracy to enable the 'public' to articulate its voice (Dewey, 1954). The debate between Walter Lippmann and John Dewey reveals the difference between an 'elitist' view and a democratic view. The 'elitist' view has a lineage going back to the theory of 'the guardians' in Plato. This theory claims that people superior in knowledge and ability are the only ones competent to govern. In *The Republic*, Plato wrote that in the best form of government philosophers rule. In the modern context if we substitute experts for philosophers we get the rule of the experts.

For Lippmann, public policy is too complex for the ordinary person to understand. He said that the average American citizen is like a "deaf spectator in the back row" at a sporting event. "He does not know what is happening, why it is happening, what ought to happen," and "he lives in a world which he cannot see, does not understand and is unable to direct" (Alterman, 2008). Lippmann did not believe in the role of public debate. According to him, even if people could understand policy, they would not want to be bothered.

It is also plausible that people want to participate but feel they cannot make sense of the changes around them. For example, Robert Bellah's research indicated that Americans feel that their best efforts to pursue their ideals are senseless. Most people say that they derive joy from doing well at work as well as by serving their community. However, they feel helpless because they have difficulty in piecing together a picture of the whole society and how they relate to it (Bellah, 1985, 1992).

For John Dewey, education is the answer to bridge this gap, it would help socialize people for democracy. He wrote that the foundation of democracy lay in conversation and debate. The public, he felt, was in eclipse, because even though the 'organized public' theoretically helped form the state, in reality, 'experts' spoke, and not the public. He also criticized Lippmann's idea of knowledge-based elites. "A class of experts is inevitably so removed from common interests as to become a class with private interests and private knowledge." According to him, "The man who wears the shoe knows best that it pinches and where it pinches, even if the expert shoemaker is the best judge of how the trouble is to be remedied" (Dewey, 1954, p. 207).

Dewey believed in the intelligence of the common person and wrote that education could bring about the necessary changes for a strong democracy. There is a tendency to judge the masses by the present conditions and to conclude that average people are incapable of judging and setting political policy. Effective intelligence is not innate, according to Dewey, but depends on debate, social conditioning and education, all of which are more realizable today due to possibilities created by technology—namely, the ease of learning, sharing and publishing ideas.

To govern a state well takes knowledge. But no individual is so qualified to govern that they can be trusted with complete power. The alternative is to increase opportunities for ordinary citizens to gain an issue-based, open and tolerant understanding of public matters. Citizens may make mistakes, but that is why education is important.

The political resources of money and information. A political resource is means a person can use to influence political behavior. Political resources can include money, time, information, knowledge and education. Of these, the one that is distributed most equally is the fundamental right to vote: everyone's vote counts equally. Other resources are distributed unequally. For example, three interrelated resources that are distributed unequally are money, time and information.

Democracies have typically flourished in countries with a market economy, possibly because both encourage decentralized decision-making. This creates a dilemma, though, as market economies have the capacity to create resource inequality of money, time and information. Time and money are more quantifiable but 'information' is harder to appraise. Information is a resource that depends on context, timeliness, trustworthiness and reliability. It is not an 'objective resource' that has equal value for all because its value is dependent on use and context. The value of information is highly contextual and people in power have often used it to retain their power. It is not always reliable but that is why one needs to know how to evaluate it.

The ability to evaluate information is distributed unequally as well. The skills to discern good information or to act on it vary considerably. Public policy is complex and skills at winnowing information are uneven though they can be taught in school. In spite of an abundance of news and information, the average citizen knows little about political or public issues, candidates and their veracity.

Economics directly drives inequality of money, but is only indirectly related to the distribution and acquisition of abilities, information, or education. Information and knowledge can be purchased as commodities in a market but they can also be acquired by other means such as education. In fact, good information coupled with the equal right to vote can go a long way towards countering the imbalance caused by other political resources. Acquiring reliable, relevant information by educated voters can level the field in favor of the public.

Expert Use of Information

Opportunities to gain an alternative, reliable and tolerant understanding of public matters are a basic requirement of democracy. Within reasonable limits each citizen must have equal access to learning about relevant issues, policies, their alternatives and likely consequences. This needs institutional support.

Every area of knowledge has information both for the novice and for experts. In most fields of knowledge, access to good information is determined by expertise and/or by money. Information is a commodity that can be purchased and experts know where to find information they need, how to identify it and obtain it most efficiently.

Academic institutions pay large sums of money so their faculty and students can access knowledge by experts in various fields. Bankers pay for expensive products like Capital IQ, Bloomberg and Factset which give them quick and relevant information. Doctors pay heavily for medical and scientific literature that helps them stay up to date in their field with minimum time and effort. Private companies publish these for profit.

Before the information explosion, a citizen could ferret out useful information about local and some national issues from the daily paper. But now issues are more complicated and often global in nature. The excess of information gives one the illusion that relevant information can be found for free any time one needs it. But this is a myth. Experts know that good information has always been

hard to find, costs time and effort, and is rarely found for free. Contrary to popular belief, a Google search does not search the entire web. It barely skims the surface because much useful content is private and 'invisible' to most search engines. Citizens cannot rely only on Google and other free search engines as their sole source for information on public issues.

Online forums for good information exist but are not the norm and cannot always be relied on. The most prominent example is Wikipedia. Here, expert and novice volunteers alike gather online to jointly create knowledge that is indeed free of cost for the user and is subject to the due process of vetting. But this source is more of an exception and one has to be vigilant about information accuracy.

Good information is harder to identify and acquire in the political arena than it is in, say, the financial, medical and legal fields. Information that a citizen needs to keep track of issues spans a wide variety of subject areas and geographic boundaries and may conflict with corporate interests or with the interests of their political representatives. It is thus much harder for citizens to identify or obtain for free. There is no Bloomberg terminal for issue based information for citizens or the equivalent of Capital IQ for the voter. Such software makes it easy to visualize information in context and a similar model would be useful for the citizen.

There is precedent for the government aiding in information retrieval, such as in the medical field. PubMed, created by the government-funded NLM (National Library of Medicine), indexes relevant medical research articles and thus allows the public access to medical articles, systematic reviews and clinical trials. Not all the information is free, but scientists and scholars are attempting to change this to benefit the public.

Citizens looking for relevant information to engage in public affairs are primarily left to their own devices. A diverse set of non-profits exists to disseminate useful information but there is no clear consensus on which ones are reliable, neutral, fact based, partisan or accurate. There is no company or group that systematically provides issue based information to help citizens with lifelong civic learning and participation.

The Old Model: Current Civic Education

Citizens acquire a civic education from a combination of formal and informal methods such as schooling and the media. This is supplemented by information from political office seekers which is often propaganda disguised as neutral information. Many citizens also belong to associations that lobby and voice their concerns. This low-cost information coupled with low information seeking skills equals low quality information. This may have been acceptable in the past when citizens knew finite print sources for reliable information. But changes in the scale of public life, increasing complexity of public policy and changes in the information world suggest we need a systematic approach to delivering and consuming information for use by citizens.

Most governments carefully select the facts they want to convey to citizens. It is often a one-way communication with the government transmitting what may best serve the interests of the people in power: the representatives and the executive.

Similarly, traditional education was based on finite content conveyed from authorities to students. Students were given a list of encyclopedias and books to consult and the classics were familiar to all. Curated sources and subject encyclopedias kept things anchored and manageable. But with the information explosion students need to know how to evaluate an information deluge, and also how to create for it.

Traditionally, people trusted national newspapers with a reputation for fact checking. But in the online world the rate of information is fast and time short so the emphasis is often more on speed and currency than on accuracy. This burdens the consumer. It raises the question of how to educate

people about what is important and reliable and how it connects with their life. Scale, complexity, and the quantity of information make a citizen's task harder.

Surveys indicate that citizens do not put much value in participating in political life (Dahl, 2000, p. 249). This non-participation is taken as a sign of indifference. However, it can also signify that voters value the ideals of democracy but are indifferent to actual political participation. Or that they would participate if they knew how. The majority of citizens value the rights and opportunities their democratic system of government provides them. They may choose not to exercise their rights. These two views are not inconsistent (Dahl, 2000, p.249). People's decline in confidence in political institutions is not accompanied by a decline in confidence in democracy.

The Proposed Model: Citizen Participation

Changes in the information world have brought about changes in the education world. The old model of schooling and education is being transformed, placing more emphasis on process than on content. Content is now easily discoverable and ever expanding so students are encouraged to learn the process of discovering knowledge rather than memorizing content. Civic education in the traditional model is content-based. It needs to move to a process-based model that stresses participation and the skills to access, navigate and evaluate information.

Good Information Skills as the new Civic Curriculum

Voters often don't know which information to trust or what questions to ask. Inundation of information in the name of transparency doesn't help; aid is needed to view the information in context and connect the dots. As a recent article on transparency by multinationals in the workplace points out, "those trying to make sense will be better informed but none the wiser. Some transparency campaigners acknowledge a risk of drowning in data or of comparing apples with oranges" ("Corporate Transparency," 2014). In the political arena, there is often a benefit to obfuscating information to serve the advantage of the politically powerful. It is thus important that citizens have good information skills.

In the classroom, students can be taught to use information skillfully. They can be taught the difference between data and knowledge. They can determine the reliability, accuracy or veracity of information by asking questions about its currency, relevance, authority and purpose. Do the sources, assumptions and evidence portray a coherent picture, or does the evidence contradict itself? Asking these questions enables them to think actively about information.

Interacting with information creates knowledge. In class, students are taught the content of a discipline and how knowledge in the subject is created. But they absorb this only if it helps them solve a question or problem they have. This is the premise of problem-based learning. Education is meaningful only if it helps solve tangible questions.

Similarly, knowledge is created within a context. "Information in any format is produced intentionally to convey a message and is shared via a selected delivery method. The iterative processes of researching, creating, revising, and disseminating information vary, and the resulting product reflects these differences." That is, information is created in a context, whether political or economic, to educate, entertain or to advertise (ACRL, 2015).

The framework recently created by the *American College and Research Libraries* is very helpful in that it focuses on concepts that form the core of information skills. It outlines interconnected core concepts such as, 'authority is contextual', 'knowledge as conversation', 'the strategy of searching' and the 'process of creating information' (ACRL, 2015). Any discipline can use these concepts because they are essential to the process of information discovery and creation.

Citizens with the right skills can now participate across geographic boundaries, given the advances in technology. They may not vote but they participate in forums, post comments to news articles and write blogs. We see comments by readers to articles from major newspapers and periodicals. This is a meaningful contribution where average voters deliberate publicly and add to knowledge if they have the right skills. One can often gain more insight from reader comments than from the original article, written by an expert. Being aware of political and current issues and debating them online is an important form of civic participation; often it is the gateway step. These contributions need to be acknowledged and supported institutionally.

A faculty with navigating online information and interacting in various formats goes a lot further than specific knowledge about the functions of government.

Alternative Sources and the Role of Government

If citizens are to be informed participants it is essential they have an opportunity to access alternative sources of information that are not controlled by the government, group in power or monopoly view. Ironically, however, the government is the best-suited to support these alternative sources and citizen's access to them, if done in a regulated manner. Governmental support can range between financial support for news organizations, mandates for accurate labeling, and ensuring legal recourse to free expression for citizens such as bloggers.

Develop independent institutions to provide access to alternative sources or fund existing ones. In some countries, the government has made it a priority to keep citizens informed. Countries such as Britain and Finland have funded independent news outlets to supply reliable information. The BBC is seen as a public service rather than as a commercial enterprise. It is funded by a license fee and does not sell advertising. Its founding mission was to "inform, educate and entertain." It has six public purposes including "Sustaining citizenship and civil society." It tries to accomplish this by providing high quality journalism, engaging the audience in current affairs news, and encouraging "conversation and debate about news, current affairs and topical issues" (BBC – Mission and Values).

Finland has the YLE, originally modeled after the BBC. It is the public service television and radio arm of the Finnish Broadcasting Company and was initially financed by license fees. The Finnish government has actually adopted the explicit goal of making sure its citizenry are well informed. According to the European Journalism center "basic guidelines" were established in 2007, wherein the "special focus is to promote the information society in everyday life, aiming towards a ubiquitous information society" (Finland - Media Landscape, EJC). Since the beginning of 2013 the license fee has been replaced by a public broadcasting tax (known as the "YLE tax"), which is collected annually from private individuals together with their other taxes, and also from corporations, with payments assessed on a sliding scale. YLE receives no advertising revenues, as all channels are advertisement-free. YLE has a status that could be described as that of a non-departmental public body.

In the U.S., the existing public broadcast networks, which provide good quality programming, such as PBS and NPR, are constantly strapped for funds. Readers of investigative journalism crave good content but it is not clear where the funds to support it will come from. Traditionally advertising paid for good content in print and media but the pattern of advertising revenue has changed in the online world.

PBS's independent documentary series take on topics of public urgency. "Food Inc." (2010), exposed harms in the food industry. "Me Facing Life: Cyntoia's Story" (2011) showed harsh prison sentences for minors, and "The Invisible War" (2012) led to changes in the military's handling of sexual assault (Lear, 2015). PBS takes on critical social issues overlooked by commercial outlets. They help give voice to citizens whose voices are not easily heard in public. Journalists interpret expert information in lay terms and disseminate it. But established media outlets cannot offer good

information for free. Even PBS has recently made changes to its offerings, with an eye to ratings, downgrading its documentaries to a different time slot (Lear, 2015).

Public intellectuals and journalists can play an important part by interpreting abstract, specialized subject matter for the benefit of the layperson. Such writing is eagerly consumed as is evidenced by the popularity of investigative journalism as well as by the impact of documentaries. 'Long Form' investigative publications tackle specific issues. They state a problem and explain accompanying information and background. These articles give context and help citizens make sense of seemingly random events. The same can be said for documentaries, an interesting new tool of journalism, which are proving to be influential with the public and are important educational tools for citizenship.

The 2014 Pulitzer Prize for Investigative Journalism was awarded for tackling subjects as diverse as: Chris Hamby's series *Breathless and Burdened*, describing how the coal industry beat back miners' claims for black lung health benefits (*Center for Public Integrity*); Commentary on struggles of bankrupt Detroit and its financial collapse by Stephen Henderson (*Detroit free Press*); Reporting on mistreatment of wounded veterans by Dave Philipps (*The Gazette, Colorado Springs*). This reporting was both popular with the public and performed a useful service by articulating the voice of the powerless. All the above organizations run on a shoestring budget.

Journalists, public intellectuals and activists are looking for creative solutions to fund good information for the public but they are sporadic and insufficient. Evan Smith of *The Texas Tribune* wagered that as newspapers retreated, government and the private sector would support a non-partisan news site to cover Texas state politics. He worked hard to make this vision a success. "The nonprofit site now has 50 full time staff members doing work that any media outlet would be proud of, including a 15-part series on how the shale boom has affected life in Texas and a huge series on the private conflicts of a part-time legislature, with a companion data project called The Ethics Explorer." (Carr, 2014). Its live stream of a filibuster became a national sensation.

Technology can help us. The Bloomberg terminal is a user friendly application developed for novice and expert traders to get vast amounts of disparate information and provide it in an actionable format. In a Bloomberg terminal, a trader can use multiple screens customized to her/his context and interact with diverse set of data, across all relevant markets and is able to view diverse and multiple sets of information in real-time. A user can access real time market data across the world and trade in those markets. S/he is able to interact meaningfully with an extremely large and hard to define universe of data and most of the work is automated by software. The user primarily needs to know how to use the terminal. A similar terminal could be developed for social and political information for citizens.

Accurate labels serve as powerful filter. Information that is most visible in the online world is often media-centered news, or advertising masquerading as neutral information. The lines between different media businesses are becoming blurred. "Media companies are producing more content on behalf of advertisers, dubbed "native advertising". At the same time some advertisers have taken to hiring their own journalists to produce stories, websites and videos. Real time bidding or "programmatic buying" is a new system for targeting consumers precisely. Ads, including political ads, can be targeted to specific consumers at a fast speed. It is hard to distinguish facts from fiction because it is not clear where the information is coming from ("Little Brother", 2014).

Carr, writing about native advertising, found that, "historical models of funding original content are under duress, and a variety of efforts have emerged to innovate around that new reality: nonprofit news sites, digital news operations with low-cost approaches and yes, brands like Verizon that are also beginning to finance their own media operations" (Carr, 2014). This is advertising masked as original content.

It would help to have accurate labels for different information sources. This would enable information to be filtered into useful categories. Information created for traders, lawyers and doctors is organized and labeled carefully for easy access. This knowledge is hidden from the public eye because it is behind a paid wall. Accurate labels would save time and money for citizens and consumers. For example, 'The Center for Science in the Public Interest' recently published a report that shows the underbelly world of supplemental marketing. An unknown compound, "Green coffee bean extract" was sold to consumers who wanted to lose weight. Fake clinical trials and fake data was published to sell the product. The FTC concluded that their study, "was never conducted or suffers from flaws so severe that no competent and reliable conclusions can be drawn from it." The scheme to fool consumers into buying a 'scientifically valid product' was elaborate and hard to evaluate by the casual reader ("The Green Coffee Caper", 2015). Similar scams plague the political realm.

Afford bloggers and citizens the legal protection of journalists. Independent news websites feel pressure from government to echo the opinion of the prevailing wisdom. The world's leading democracies have a poor record of responding to the rise of authoritarianism in their own regions, according to a *Freedom House* report released in November 2014 (Karlekar, Dunham, 2014). Writers and bloggers often provide independent points of view and are not always allowed free expression.

A government can sometimes penalize citizens for publishing information that is contrary to what the government may want them to know. The recent attempt at making a distinction between a blogger and a journalist seems an attempt at censorship. A journalist is afforded special protections under the constitution. This makes the question of who is a Journalist a legal one as it determines whether only those who work for a newspaper organization or also those who get paid for newsgathering and everyone with a Facebook page get legal protection and at what level. Is Glenn Greenwald, the constitutional scholar and activist, a blogger or a journalist? The answer to this question is important because Greenwald is accused of aiding Edward Snowden, the N.S.A leaker. Should he get the protection a journalist is afforded?

When citizens are discouraged from expressing themselves or for sharing information the issue is important enough to need public discussion. The stakes are high because, "Once reporters are branded as activists, once their work is tainted by the accusation of criminal activity and they are cast out of the circle of protections for journalists, they are vulnerable to criminal treatment" (Greenwald, 2015, p. 236).

One of the few places that some of these ideas are being discussed is on online political blogs, so it is important that bloggers be protected (Greenwald, 2006). Greenwald claims he started his blog to get his voice heard by the government. "This is about whether we are a nation of laws and whether, in the name of our fear of terrorists, we will abandon the principles of government" (Greenwald, 2006, p. 6).

Similarly, Wikipedia provides citizens a portal to share information and help each other. It is a testimony to volunteer citizen effort and should be encouraged by the government. But users of Wikipedia feel threatened by their own government and in March 2015, Jimmy Wales and Wikipedia filed a suit against the National Security Agency to protect the rights of its users to exchange knowledge and ideas freely. Every year about 75,000 volunteers in the U.S. and around the world contribute their time and passion to share and help others and they should be able to do so without fear of the U.S. government monitoring what they read and write (Wales, 2015).

Wikipedia is an example of citizens seeking to inform themselves about issues that concern them. It shows that people are interested in reading and creating information that is useful to themselves and others. It speaks to the power of volunteers and the spirit of sharing, of being informed and informing others. But instead of getting support from its government its users feel threatened.

Even for a discerning consumer it is efficient to have organized expert sources to refer to. The worst option is to leave citizens to fend for themselves with no institutional support. Issues are complicated and information abundant and unorganized and this makes the task daunting for an individual.

The government can develop institutions and applications or fund existing organizations that provide reliable and relatively independent information. Bloggers and investigative journalists can feel intimidated because they may provide information not sanctioned by the party in power. They need to be protected by law so citizens can get the information they deserve.

Conclusion

At the heart of democracy lies the goal of political equality: an equal opportunity to vote, speak and govern the association we live in. At the root of this is the claim that ordinary people are competent to govern themselves and capable enough to have final say in decisions that govern them. No person's interests are more important than another person's. Further, no one is so much better qualified than others that they be given final authority over the government of a state. We need to govern ourselves. It is thus important that citizens are competent and have an informed understanding of the issues that impact them.

Our current methods of civic education arose in the nineteenth and twentieth century, in an era of scarcity of information. In the modern era, the explosion of information and informal news sources of varying reliability begs for an update to the old model of civics education. With a media environment that changes almost daily, citizens are better off learning how to navigate that environment than learning about traditional practices from a century ago.

However, low citizen participation is a structural issue and cannot be solved by curriculum reform alone—nor does the onus of participation rely solely on citizens. It is also the responsibility of the government. Each citizen must have equal opportunities for learning about relevant alternative policies and their consequences. Citizens cannot function effectively if all their information comes from a single source, whether the government or ruling party. Citizen participation in online blogs, forums, news sites and encyclopedias such as Wikipedia show that the spirit of volunteering and participation is alive and well in the U.S. and individuals are willing to debate and discuss if they have access to relevant information. Government support can vary between financial support for news organizations, mandates for accurate labeling, and ensuring legal recourse to free expression. They can help develop institutions or applications that provide citizens with better access to reliable, independent and relevant information.

It is imperative that citizens participate in their governance. A decline in the direct influence of citizens in government decisions and those of their elected representatives may put the level of U.S. democracy below the threshold for a level of democracy considered acceptable at the beginning of this century. It is crucial to provide members effective opportunities for learning about relevant alternative policies and their consequences to continue being considered a democracy.

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Diversity Management and Respect for Diversity at Schools

Ahmet Saylık*

Ankara University, Turkey

Mahmut Polatcan**

Ankara University, Turkey

Numan Saylık***

Van Ipekyolu Center of Science and Art, Turkey

Abstract

The purpose of the study is to examine employees' individual attitudes towards diversity management and respect for diversity in secondary education in views of secondary school administrators and teachers, and to explore the relationship between these concepts. According to the results of the study, administrators and teachers in secondary schools display positive individual attitudes and behaviours towards diversity. School administrators and teachers' organizational norms and values associated with diversity are positive. However, there is a low positive relationship between respect for diversity and diversity management.

Key words: Diversity, Diversity Management, Respect for Diversity.

* Ankara University Institute of Educational Sciences, Educational Administration and Policy, Turkey

**Ankara University Institute of Educational Sciences, Educational Administration and Policy, Turkey

*** Teacher, Van Ipekyolu Center of Science and Art, Turkey

Introduction

With the rise of globalization, factors such as culture, beliefs and interaction among people have enabled coexistence of differences. Because of the increase in diversity and complicity in manpower, the concept of diversity has started to play an important role in organizational life (Bhadury, Mighty & Damar, 2000; Williams & O'Reilly, 1998). Numerous researchers have interpreted diversity in different ways. Cox & Smolinski (1994) suggest diversity is the representation of different identities in the same organizational system. Cox (2001) defines diversity as the exchange of social and cultural identities when people gather in the same organization or a job. Ely & Thomas (2001) point out that diversity needs to be perceived as a work attitude and perspective where members of different groups of identities meet. Esty, Griffin & Hirsch (1995) describe diversity as approving and understanding values and ritual differences among people in terms of age, category, ethnicity, physical and mental skills, race and sexual orientation. According to Kreitner (2001), diversity is the representation of individual differences and similarities in majority. In other words, diversity is a mixture of different identities, backgrounds, experiences, beliefs, value judgements, ages, genders, demographic structures, professional experience, physical abilities, educational levels, family status, and personal dispositions and so on in any group, community or organization (Foxman & Easterling, 1999). As a result, diversity can be described as organizational or individual differences that are innate or acquired through socialization.

Diversity management is used as a synonym of organizational culture. Conceptually, organizational culture is the lingual applications and symbols of hidden values and beliefs of a group in an organization. Globally, aspects of diversity are viewed as ethnicity, gender, age, race, social status and even identity (Villum, 2007). Diversity management is defined as organizational process planning through the improvement of organizational environment of all employees with differences and similarities that could contribute to the organization's strategic competitiveness (Thomas, 2004). Diversity management, according to Barak (2014), means voluntary organizational actions in which employees are more extensively involved with the help of policies and programs of various formal and informal organizations. In other words, diversity management in an organization is the efficient and conscious improvement of a strategic, communication based administrative process shaped by values with a focus on future to create added value for the company, which includes approving and employing differences and similarities (Keil at all, 2007). Diversity management focuses on maximizing the skills of all employees in order to contribute to organizational goals. Ignoring diversity causes loss of productivity, time and money. Probable outcomes of inability to manage diversity are as follows: non-healthy tension between people caused by age, ability, ethnicity, race and gender differences; loss of productivity caused by conflicts; legal acts and complaints; preventing women from work and so on (Aoun & Gibeily, 2007).

Diversity management has emerged in the USA, a multinational country. Demographic changes such as women's participation in workforce, organizational restructuring, legal equality of opportunity, new and creative approaches in human management and administrative applications have brought changes in organizations (Green, Lopez, Wysocki, & Kepner, 2002). The aim of diversity management is to increase work power, satisfy employees, and strengthen communication between employees and increase employee performance (Weech-Maldonado, Dreachslin, Dansky, De Souza, & Gatto, 2002). America, from the 1900s, has turned into a more combined culture which encompasses people with different races, gender, religion, ethnicity, group and beliefs from the dominant, white European culture (Foxman & Easterling 1999). It emerged as social protests, human rights movements and the movement of freedom in the 1950s; judicial rules, human rights and equal opportunity laws in the 1960s and the 1970s; economic and demographic changes in the 1980s and the 1990s (Brazzel, 2003). Research on diversity is largely based on four aspects: personal (education, skill and abilities), internal (gender, race, ethnicity, intelligence and sexual orientation), external (culture, nation, religion, marital status) and organizational aspect (status, department, union member/non-member) (Digh, 1998; How, 2007; Johnson, 2003; Simmons-Welburn, 1999; cited by Kreitz, 2007).

Diversity management is employed in research and theory in order to manage organizational change, as well as in the area of application of behavioural sciences. Diversity in organizations is applied to remove certain difficulties caused by people's racial differences, sexual orientation and gender. The aim here is to bring lifelong learning, modesty, compassion, social justice, and respect for differences and to improve health and efficiency in organizations (Brazzel, 2003). Social, economic and political factors have increasingly caused a great difference in the current work power. Organizations are attempting to redesign their practices in order to attain organizational goals with constantly decreasing sources. Such a disposition entails the need for efficient diversity management in team work (Bhadury, et al, 1999). Cox & Smolinski (1993) have listed the aims of diversity management as follows:

1. To create a climate where all members can be aware of their individual achievement and organizational contributions
2. To benefit from potential advantages of diversity and minimize probable obstacles
3. To create a climate where people from different cultural backgrounds in terms of values, working styles, priority of purpose and behavioural norms can cooperate with maximum performance

Balay, Kaya and Yılmaz (2014) report that managing diversity is beneficial to organizational administrators involved in the environment. Efficient diversity management in organizational and professional life gives a way to increased productivity, competition and job satisfaction, lower costs, improved creativity, strengthened organizational synergy, increased organizational adaptation skills and better employee attendance. Inefficient diversity management causes the following organizational deteriorations: disturbed working discipline, increased communication problems and disagreements, and reduced organizational commitment. In such cases, managers will try alternative solutions that might have a damaging effect on organizations.

In the context of well-managed diversity, respect for diversity is considerably significant both for organizational goals and individual happiness (Memduhoğlu, 2007). In the literature, it is suggested that respect is the product of two different attitudes. Parekh (2006) reports that these two attitudes are: "respect for dignity" and "respect for diversity". Taylor (1996; cited by Öksüz & Güven, 2012) similarly mentions two other attitudes: "equal dignity" and "diversity policy". It can be thought that both classifications are similarly related. Here, dignity and respect for dignity describe the assumption that individuals are humans and thus they need to have equal rights whereas respect for diversity is associated with understanding and tolerance for differences arising from being minorities.

Respect, as a fundamental moral value, is closely related to concepts such as tolerance and understanding. Respect is a widely-used term in relation to diversity. Balint (2006) states that respect is believed to be a kind of response which is employed in several organizational policies such as ethnic tensions, discrimination, prejudice, social adaptation and democratic equality. Keogh (1998) indicates that classroom environments similarly provide different emotional, social and academic atmospheres and these factors influence students' social and emotional learning and classroom climate respectively. According to Parekh (2006), respect for diversity means positive attitudes towards recognition and protection of the rights of cultures or people in minority and conformity with them.

Almost in every part of the world, young pupils with different learning capacities, difficulties, knowledge, cultures, languages and experiences attend the same classrooms as their peers (Karangwa, Miles & Lewis, 2010; Mowat, 2010; Schirmer & Casbon 1995). Teachers' role in the learning process through such differences is considerably significant. However, teachers themselves need to have respect and flexibility for diversity in the first place in order to teach young children human rights in the classroom, school and society, their own and other people's cultural values and respect for them (Banks, 2001; Eryaman, 2006, 2007; Hahn, 2005).

The purpose of the study was to examine the level of respect for diversity and diversity management in state secondary schools and to explore the level of the relationship between these two concepts. To this end, answers to the following questions were sought after:

1. According to the participants, what is the level of respect for diversity and diversity management in schools?
2. Do the participants' views about respect for diversity and diversity management in schools significantly vary according to gender, seniority, title, marital status, immediate area of work location, branch/field and educational level?
3. Is there a relationship between respect for diversity and diversity management in schools in views of secondary school administrators and teachers?

Method

Research Model

The research has the descriptive method. The method attempts to define a given case, individual or object as the research subject in their own terms and the way they are (Karasar, 2009). Perceptions of respect for diversity and diversity management in schools and views about their relationship are specified and evaluated based on the model.

Population and Sample

The population of the study consists of secondary (high) school administrators and teachers in Siirt central province (a province located in the south eastern part of Turkey). A total of 481 teachers and 100 administrators work in these schools. 42 school administrators and 278 teachers in the secondary schools were reached in the scope of the study. The sample was randomly selected. Information on personal features of the participants is given in Table 1.

Table 1. *Personal information of the sample group*

	Variable	N	%
Gender	Female	105	32,8
	Male	215	67,2
Age	20-25 years	35	10,9
	26-30 years	109	34,1
	31-35 years	91	28,4
	36-40 years	58	18,1
	41 and above	27	8,4
Marital Status	Married	195	60,9
	Single	125	39,1
Title	Administrator	42	13,1
	Teacher	278	86,9
Educational Level	Bachelor's degree/ Associate deg.	243	75,9
	Postgraduate (master)	77	24,1
Professional Seniority	1-5 years	166	51,9
	6-10 years	58	18,1
	11-15 years	52	16,3
	16-20 years	27	8,4
	21 and above	17	5,3
School Type	Anatolian	128	40,0
	Science and Anatolian Teacher	29	9,1
	Vocational	114	35,6
	Islamic Divinity High School	49	15,3
Location	District /Village/Town	42	13,1
	City	224	70,0
	Metropolis	54	16,9
Branch	Social	109	34,1
	Maths-Science	79	24,7
	Vocational	69	21,6
	Other (Foreign Languages, tour guide department etc.)	63	19,7
Total		320	100

In Table 1, 105 of the participants are female and 215 are male. This difference is caused by the high number of male school administrators. Most of the participants are married. It is obvious from the distribution of seniority groups that junior teachers (1-5 years) are in majority. This case is thought to be the result of the initial teacher appointments to the eastern and south-eastern provinces of Turkey. The proportion of those who live in urban areas seems to be more than that of those in rural areas. Accordingly, more than 85% of the participants have lived most of their life in cities and metropolises. It is clear that the number of social field teachers is more than the number of vocational or maths-science teachers.

Data Gathering Instruments

For data gathering, “Personal Information Form”, the “Diversity Management Scale” and the “Respect for Diversity Scale” were incorporated in the research. The scale features are explained below.

Diversity Management Scale (DMS). The “Diversity Management Scale”, developed by Balay and Sağlam (2004) and reorganized by Memduhoğlu (2007), was employed in the study as a data gathering instrument. The study investigated to what extent each scale item was perceived by school administrators and teachers. The 28-item-scale had the following factors: “individual attitudes and behaviours”, “organizational values and norms”, and “administrative applications and policies”. Factor loadings of the scale ranged from .46 to .84. Item total correlations ranged from .49 to .67 in the first factor, from .45 to .63 in the second factor and from .61 to .78 in the third factor. Total variant

of the three factors was found 58.1%. Cronbach Alpha coefficient for reliability was found .77 for the first factor, .83 for the second and .95 for the third factor. The scale was a 5-point Likert type scale. High scale scores indicated positive perceptions and well-managed diversity in schools. In this study, the alpha value of DMS was found “ $\alpha=.93$ and item test correlations ranged from .33 to .79. The following calculations were obtained as a result of the study: $\alpha=.84$ and item test correlations from .66 to .73 for individual attitudes and behaviours; $\alpha=.69$ and item test correlations from .38 to .69 for organizational values and norms; $\alpha=.96$ and item test correlations from .71 to .86 for administrative applications and policies. It could be suggested that the scale is reliable.

Respect for Diversity Scale (RDS). The “Respect for Diversity Scale”, developed by Öksüz and Güven (2012), aimed to explore levels of respect for diversity. The 30-item-scale had the following factors: “knowledge based diversity”, “social category diversity”, and “value diversity”. Item test correlations calculated for item validity ranged from 0,30 to 0,83. Additionally, Cronbach Alpha reliability coefficient of the scale was found 0,94 and similar scale correlation was 0,70. As a result of factor analysis, total variant of the scale was found 59.24%. The scale was a 5-point Likert type scale. Cronbach Alpha coefficient was found .81, and corrected item correlations ranged from .20 to .47. The following calculations were obtained as a result of the study: $\alpha=.72$ and item test correlations from .26 to .45 for knowledge based diversity; $\alpha=.55$ and item test correlations from .20 to .32 for social category diversity; $\alpha=.51$ and item test correlations from .20 to .30 for value diversity. As a result of the findings, it could be suggested that the scale items are reliable.

Data Analysis

Parametric analysis methods were employed in the study because the scale items showed continuity, the data were homogeneously distributed, the sample was ($n>50$), the equality of mod=median was ensured and the distortion and kurtosis coefficients were between (+1,-1). Descriptive statistics (arithmetic mean and standard deviation) were used for the data analysis and prediction was used to determine whether there was a significant difference in the views about certain variables and t-test and variant analysis (ANOVA) were implemented for the non-related samples. $p<.05$ significance level was concerned in testing the difference among group averages.

Results

In this section, the views of high school administrators and teachers about the scale items, factors and some demographic variables of the Diversity Management Scale and the Respect for Diversity Scale are mentioned.

Findings of Diversity Management (DM) Perceptions and Respect for Diversity (RD) Perceptions in Schools

Average and standard deviation values of the participants for the statements of respect for diversity are given in Table 2.

Table 2. Mean scores of the statements of respect for diversity

Factor	\bar{X}	Sd
Knowledge based diversity	4,23	0,55
Social category diversity	4,18	0,61
Value diversity	3,80	0,64
Total	4,11	0,50

It is clear from Table 2 that the school administrators and the teachers thought respect for diversity in their own schools was high (\bar{X} = 4.11). The participants had “high” (\bar{X} = 4.23) positive attitudes in “knowledge based diversity”. The most agreed item in the factor was as follows: “*I make friends with someone with a physical disability*” (\bar{X} = 4.78) and the least agreed item was: “*I don’t find those unattractive who do not have age-appropriate outfit*” (\bar{X} = 3,57). The school administrators and the teachers agreed with the items and all the other items of this factor above average. The participants strongly (\bar{X} = 4,18) agreed with the statements in social category diversity. The most agreed item of this factor was as follows: “*If I had power, I would remove some colours from the rainbow*” (\bar{X} = 4,55). The participants agreed with the statements of value diversity above average (\bar{X} = 3,80). They strongly agreed with the following: “*Votes of those with higher levels of education should be of more significance*” (\bar{X} = 4,25). They moderately (\bar{X} = 2,70) agreed with the following: “*I don’t make friends with those who tend to have same-sex sexual preference*”. As a result, it could be concluded that the school administrators and the teachers had positive views in the RDS.

Table 3. Mean scores of the statements in DM factors

Factors	\bar{X}	Sd
Individual attitudes and behaviours	3,90	0,99
Organizational values and norms	3,82	1,20
Administrative applications and policies	3,61	1,04
Total	3,71	0,94

It is clear from the weighted average of the scale factors in Table 3 that the participants considered diversity in high schools well managed “to a great extent” (\bar{X} = 3,71). When the average of the first factor is examined, it is obvious that the participants thought attitudes and behaviours towards employee diversity in high schools were positive “to a great extent”. Accordingly, the participants agreed with the following at a “high” level: “Development of skills and experience of high school staff is supported; staff shares experiences in personal problem solving, different views and behaviours are welcomed and normally reacted” It is clear from the average of the second scale factor that the participants thought organizational values and norms towards diversity in high schools were positive “to a great extent” (\bar{X} = 3.82). From this point of view, they strongly agreed with the statements such as ability to express ideas in the scope of religion and freedom of conscience between colleagues, respect for different life styles, empathy, and openness to communication with different people and to exchange of ideas for improvement of personal understanding and negatively considered behaviours. According to the average of the third scale factor, the participants agreed with the idea that administrative applications and policies for diversity were positive in high schools and diversity based administration was employed “above average” (\bar{X} = 3,61). Relatively, the least agreed statements were in this factor. As a result, it could be concluded that the participants “strongly” agreed with the ideas that school administrators perceived diversity as a source of richness and they neither discriminated between staff with regards to gender or status nor favoured anyone, and they treated all employees fairly.

Findings of Personal Variables

Findings of t-test which was performed to determine whether the participants’ views about diversity management and respect for diversity in their schools varied according to gender, marital status and title are presented in Table 4.

Table 4. *T-test results according to gender, marital status and title*

	Variable	Level	N	\bar{x}	sd	Df	t	p
Gender		Female	105	123,30	11,24	318	3,51	.01
	RD	Male	215	117,35	15,48			
		Female	105	105,47	24,43	318	0,75	.45
	DM	Male	215	103,12	27,04			
Marital Status		Married	195	118,80	14,13	318	0,78	.44
	RD	Single	125	120,09	15,05			
		Married	195	104,82	25,50	318	0,79	.43
	DM	Single	125	102,43	27,28			
Title		Administrator	42	116,19	13,61	318	1,48	.14
	RD	Teacher	278	119,77	14,58			
		Administrator	42	106,07	26,24	318	1,58	.56
	DM	Teacher	278	103,55	26,22			

p<.05

According to Table 4, the views of the school administrators and the teachers about the level of respect for diversity in schools [$t_{(318)} = 3,510$; $p < .05$] varied according to gender. As a result, the female participants thought there was a “higher” level of respect for diversity in schools than the male participants. The views of the participants about the level of diversity management in schools [$t_{(318)} = 0,75$; $p > .05$] varied according to gender. Similarly, when the table is analysed, it is clearly seen that marital status and titles of the participants did not influence their views about respect for diversity and diversity management.

Table 5. ANOVA test results according to seniority, immediate area of work location, branch/field, number of teachers and number of students

		\bar{x}									
Variable	Level	N	\bar{x}	sd	Total square	df	Average square	F	P	Differ. (LSD)	
Seniority	RD	1-5 years	166	122,78	13,20	5174,94	4	1293,73	6,60	.00	1-2
		6-10	58	117,12	14,72	61748,66	315	196,03			1-3
		11-15	52	113,65	14,46	66923,60	319				1-4
		16-20	27	118,81	13,54						
		21 and above	17	110,82	18,06						
	DM	1-5 years	166	105,66	25,06	4784,48	4	1196,12	1,76	.14	
		6-10	58	96,03	29,13	21407,47	315	679,61			
		11-15	52	107,27	28,44	218861,95	319				
		16 – 20	27	102,44	20,29						
		21 and above	17	105,29	25,16						
Where did you spend most of your life?	RD	Village-District	42	120,62	13,72	3080,35	2	1540,18	7,64	.00	3-2
		City	224	117,62	15,01	63843,25	317	201,40			
		Metropolis	54	126,38	9,60	66923,60	319				
	DM	Village-District	107	106,85	27,72	1616,87	2	808,43	1,18	.30	
		City	175	104,37	25,65	217245,08	317	685,32			
		Metropolis	183	98,85	27,34	218861,95	319				
Branch / Field	RD	Social Fields	108	120,91	15,43	1419,54	3	473,18	2,28	.08	
		Science-Maths	80	117,74	13,83	65504,06	316	207,29			
		Vocational Fields	69	116,41	14,73	66923,60	319				
		Other	63	121,71	12,82						
	DM	Social Fields	108	99,18	27,50	3876,71	3	1292,24	1,89	.13	
		Science-Maths	80	117,52	25,96	214985,24	316	680,33			
		Vocational Fields	69	108,19	25,03	218861,95	319				
		Other	63	104,83	24,83						
School Type	RD	Anatolian	128	120,15	13,82	2830,02	3	943,34	4,65	.00	1-2
		Science and Anatolian	29	111,41	13,80	64093,57	316	202,83			3-2
		Vocational	114	121,54	13,46	66923,60	319				3-4
		Islamic Divinity	49	116,57	17,08						
	DM	Anatolian	128	100,83	26,04	2220,07	3	740,02	1,07	.36	
		Science and Anatolian	29	103,38	21,57	216641,88	316	685,58			
		Vocational	114	196,32	27,29	218861,95	319				
		Islamic Divinity	49	106,53	26,35						

p<.05

It is clear from Table 5 that the views of the participant school administrators and the teachers about respect for diversity in schools did not vary according to branch and school type. Likewise, the levels of diversity management did not vary according to seniority, where they lived most, branch and school type.

It is seen in Table 5 that the views of the participants about respect for diversity varied according to seniority $F_{(4-315)} = 6,600$; $p < .05$]. Accordingly, the school administrators and the teachers in the experience range of 16 years and above had higher sense of respect than those in the other groups of seniority.

When Table 5 is analysed, it is obvious that the participants' level of respect for diversity varied according to the immediate area of work location [$F_{(2-317)} = 7,647$; $p < .05$ and school type [$F_{(3-316)} = 4,651$; $p < .05$]. Accordingly, the levels of respect for diversity of those who spent most of their lives in metropolitan cities were higher than the ones who lived mostly in cities. In addition, the participants from Anatolian High Schools had more positive views than the participants from Science or Anatolian Teacher High School, and the participants from vocational high schools had more positive views than the participants from both Science and Anatolian Teacher High School and Islamic Divinity High Schools.

Findings of the Relationship between Respect for Diversity and Diversity Management in Schools

Findings of the views of the school administrators and the teachers about the relationship between respect for diversity and diversity management are presented in Table 6.

Table 6. *Correlation values between respect for diversity (factors) and diversity management (factors) in schools*

	Respect for Diversity	Information	Social	Value
Diversity Management	,133*	,126*	,151**	,049
Individual	,258**	,260**	,239**	,128*
Organizational	,121*	,105*	,122*	,079
Administrative	,078	,076	,110*	,002

*: < 0.01 **: < 0.05

When Table 6 is analysed, it could be suggested that there is a low positive, significant relationship between respect for diversity and diversity management ($r=0,133$). Thus, it can be said that as respect for diversity increases, the level of diversity management increases.

Discussion and Conclusion

The study concludes that the participant school administrators and teachers agreed with respect for employee diversity in schools above average. Similarly, it could be suggested that the participant teachers “strongly” agreed with the ideas that school administrators saw diversity as a source of richness, they never discriminated in favour of staff titles and they treated all employees fairly. Thus, Morrison, Lumby & Sood (2006) argue that a different school administrator could understand different teachers, and a different teacher could understand different students and can appeal to them more successfully.

Secondary school teachers’ views about respect for diversity vary according to gender. Women, when compared to men, think that there is a “higher” level of respect for diversity in schools. On the other hand, teachers’ views about diversity management do not vary according to gender. According to Memduhoğlu (2007), discrimination against women appears in staff hiring, salary, promotion, benefits of educational opportunities, evaluation of performance, employee turnovers and retirement. According to research results, diversity management contributes to promotion of women, people from different ethnic origins and minorities (Konrad & Linnehan, 1995), increasing demographic diversity is welcomed by females (Ely, 1994), and it decreases employee absence and turnovers and provides female employees with more opportunities (Cox & Blake, 1991). Similarly, there is no significant difference in the views of the participants about respect for diversity and diversity management according to marital status and titles. Memduhoğlu & Ayyürek (2014) conclude in their study on pre-school teachers that diversity management does not significantly vary according to gender and title. Memduhoğlu (2011) confirms the views of school administrators and teachers significantly vary according to title, gender, seniority and area of work.

The participants’ views about respect for diversity do not vary according to branch and school type. In a similar way, the levels of diversity management do not vary according to seniority, immediate area of work location, and branch and school type. The participants’ views about respect for diversity vary according to seniority. Accordingly, the school administrators and the teachers in the experience range of 16 years and above have higher sense of respect than the other school

administrators and teachers in the other groups of seniority. Öncer (2004) states in his study that school administrators in the experience range of 1-5 years believe it is essential to have administrative differentiation strategies more than those in the experience range of 6-10 years. The study of Balay, Kaya & Yılmaz (2014), entitled “the relationship between servant leadership competencies of educational managers and their ability of managing diversity”, concludes that there are significant differences in school administrators’ level of diversity management according to gender, task type, age, professional experience.

It has been observed that there are significant differences in respect for diversity according to immediate area of work location. The levels of respect for diversity of those who have spent most of their lives in metropolitan cities are higher than the ones who have lived mostly in cities. In addition, the participants from Anatolian High Schools have had more positive views than the ones from Science and Anatolian Teacher High School, and the participants from vocational high schools have presented more positive views than the ones from both Science and Anatolian Teacher High School and Islamic Divinity High Schools.

There is a low positive, significant relationship between respect for diversity and diversity management. Thus, it can be said that as respect for diversity increases, the level of diversity management increases.

Recommendations

According to the study, the following recommendations can be made for educators and researchers. For applicators:

1. There could be training programmes for school administrators and teachers in educational organizations about diversity management to make them aware of the diversity is a source of richness for organizations in the context of love, respect and tolerance.
2. Creating an environment in schools where teachers can perform their own skills in decision making without discrimination may help team work among teachers popularise, and introduce an understanding of diversity management.
3. Teachers and school administrators can be helped to improve their perspectives about respect for diversity by increasing cooperation among national and international schools.
4. School administrators can analyse socio-cultural features of teachers and other staff and can benefit from these features in decision-making process and practice.
5. Out of office social and cultural events can be organized for diversity awareness or better diversity understanding.

For researchers:

1. Further research on diversity management at primary education level is needed.
2. Contribution of diversity management to decision making process in organizations can be searched.
3. The relationship between respect for diversity and tolerance, and intercultural leadership can be investigated.
4. The relationship between leadership styles and respect for diversity and diversity management can be discussed.

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Investigation of the Secondary School Students' Images of Scientists *

Abuzer Akgün

Adiyaman University

Abstract

The overall purpose of this study is to explore secondary school students' images of scientists. In addition to this comprehensive purpose, it is also investigated that if these students' current images of scientists and those in which they see themselves as a scientist in the near future are consistent or not. The study was designed in line with the case study research in a qualitatively manner. The working group is of totally 175 (95 boys, 81 girls) secondary school students enrolled in the fifth, sixth, seventh and eighth grade of a public school located in the province of Adiyaman. Data were collected through drawings during the drawing activity and interviews conducted with the selected drawings' owners in order to explore images of scientists. Elements take place in the drawings which are investigated by two of science education expert and one of art expert were analyzed in accordance with certain categories appearing in the related literature. Furthermore, fifteen pictures among others were randomly selected and their owners were asked to imagine themselves as a scientist in the near future and consequently depict and draw on a paper their imagination. For further information, interviews were carried out to determine the differences between the first drawings and the second ones. It is concluded that 68% of secondary school students draw a natural scientist or scientists, 2,28% of those draw a social scientist or scientists and finally the rest draw no scientist. The rate of drawings including only one scientist is %66,85 while the rate of drawings possess more than two scientists %4,57. On the other hand, the rest of the drawings are without any scientist. There is no obvious difference in all categories selected in the context of the study according to grade level and gender. The study revealed the possibility of the fact that secondary school students' images of scientist are substantially formed by the content of prevailing mainbooks and workbooks including activities in the classrooms. When talking about scientists, the majority of the students depict a nature scientist who works more often in the laboratory, especially male and bespectacled. In addition, students mostly consider people as a scientist who work in the field of natural sciences. Consequently, doing science is an individual effort in an indoor environment rather than a set of group activity. Finally, data from interviews show that most of the students have a dream of being scientist in their future careers.

Key words: Nature of Science, Images of Scientists, Drawing Technique

* This study was presented as a paper presentation in the 23th Congress of National Educational Sciences.

Correspondence: aakgun@adiyaman.edu.tr

Introduction

The concept of scientific literacy has increased its importance especially since the final years of 1950s by making nature of science more researchable (Lederman, 2006). One of the prominent rationales of these terms is the fact that nature of science is a vital prerequisite of scientific literacy acquisition (AAAS, 1990, 1993, NRC, 1996; NSTA, 1982, Lederman, 2006). Because of different explanations derived from various perspectives, there is no mutually accepted description of nature of science. However, there are certain points on which experts studying in the related field agreed. These points given below highlight the meaning of nature of science:

- Imagination and creativity in science
- Social and cultural effects in the development process of scientific knowledge
- Tentativeness of scientific knowledge
- Subjective, objective and theory-laden nature of scientific knowledge (Osborne, 2003; Lederman, 2006).

As pointed out in the findings of earlier research, both students and teachers generally have insufficient or naive understandings of nature of science (Lederman, 2006). Therefore, it is getting more and more important to view educational settings such as teaching programmes because of their possible effects on students' images of scientists and perceptions on nature of science. By the way, improving students' understandings of nature of science make them more informed and facilitate the learning of science content (Driver, Leach, Millar & Scott, 1996). There is a lot of controversy over the relationship and differences between science and nature of science. It doesn't exist any mutually accepted description of nature of science (Abd-El Khalick & Lederman, 2000; Lederman, 2006). Accordingly, it reveals the importance of fundamental paradigm on how to teach nature of science. Because science develops with the improvements in the fields of history of science, philosophy of science and sociology of science disciplines deal systematically with science and scientific entrepreneurship (Abd-El Khalick & Lederman, 2000). Referring to the impossibility of reaching a mutually accepted description of both scientific literacy and nature of science, Laugksch (2000) states that expected outcomes from science education are formed along with the expectations of different occupational groups and stakeholders by approaching the issue using the term of "*Interest Groups*". Nature of science is generally considered as a complex construct consisting of both the epistemology and sociology of science and a way of knowing including certain values and beliefs inherent to scientific knowledge (Lederman, 1992,2006).

Despite there are science teaching programmes prepared with regard to contemporary approaches, they are more often unable to prevent students' from having misconceptions regarding nature of science. These misconceptions are particularly unrealistic views that are initially gender-based, that is, consisting of scientists' activities and beliefs connected with scientist are male (Newton&Newton, 1998; Korkmaz&Kavak, 2010).

In Turkey, teaching of nature of science, in other words, content knowledge of nature of science has been taught predominantly through textbooks. These textbooks fail to fulfil the aim of getting students more informed in terms of nature of science. Moreover, most of the teachers don't have enough competencies including insufficient or naive beliefs of nature of science so that students are getting more prone to develop misconceptions by teaching of these incompetent teachers.

With some promising results reached in the practical nature of science research at the higher education level in the last several years, however, it has been barely made sense the fact that some students who famish equal opportunities against other students in the process of learning of science and nature of science content, relatively. Nevertheless, it is essential to mention about certain problems due to the nature of the issue comprises nature of science. Nature of science refer to a complex and hybrid field possessing blending aspects of history of science, philosophy of science and sociology (McComas&Almazroa, 1998). Therefore, it could be generalized that understandings of nature of science develops over time and make sense of it with fortifying the relationship between the

aspects given above. Accordingly, teaching of nature of science should be given permanently, in other words, should be facilitated from primary school level to higher education level.

In the related literature, it is a common interpretation that students imagine a laboratory when they are asked to depict scientists and their working environments. This perception make students think about science as if it should be necessarily carried out in the indoor areas. Drawings with introvert and unsocial scientists working alone in a laboratory are main descriptions on images of scientists. On the other hand, students mostly regard scientists working in the field of natural sciences as a scientist rather than the others working in social sciences. Scientists appearance and materials, equipments they use are also striking. Scientists are generally perceived as male, bespectacled, wearing a white lab coat and having strange beard and hair (Newton&Newton, 1998). This perception reflects the fact that students tend not to see scientists as anyone living in his/her daily life.

The overall purpose of this study is to explore secondary school students' images of the scientist. In addition to this comprehensive purpose, it is also investigated that if these students' current images of scientist and those in which they see themselves as a scientist in the near future are consistent or not. Referring to the lack of research on related issue, Zhai et al. (2014) point out in their study that students from fourth grade level perceive science as carrying studies at first hand, doing science by teachers lectures, doing science by using textbooks and finally doing science in the context of social process. In addition, students who are exposed to experiments see themselves as a scientist more often compared to others.

Method

Data Collection

Data were collected through students' drawings in order to discern images of scientists (Buldu 2006). Elements take place in the drawings which are investigated by two of science education expert and one of art expert were analyzed in accordance with certain categories appearing in the related literature. Furthermore, fifteen pictures among others were randomly selected and their owners were asked to imagine themselves as a scientist in the near future and consequently depict and draw on a paper their imagination. For further information, interviews were carried out to determine the differences between the first drawings and the second ones. The study was designed in line with the case study research in a qualitatively manner. The working group consists of totally 175 (95 boys, 81 girls) secondary school students from the fifth, sixth, seventh and eighth grade of a public school located in the province of Adiyaman.

Analysis of Data

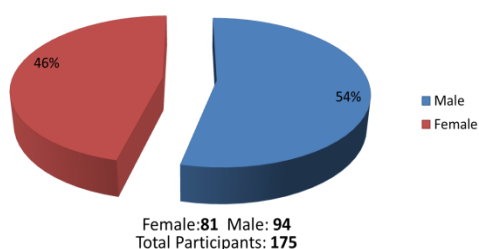


Figure 1: The Distribution of Participants by Gender

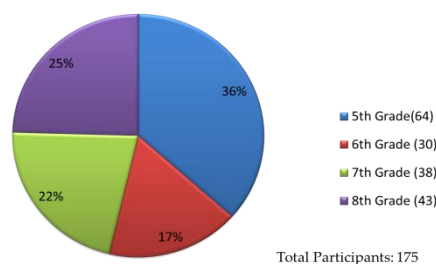


Figure 2: The Distributions of Participants' Grades and Frequencies

As given above, in Figure 1, participants consist of 46% female and 54% male. Figure 2 shows the distribution of participants by grade as 36% of 5th, 17% of 6th, 22% of 7th and 25% of 8th, relatively.

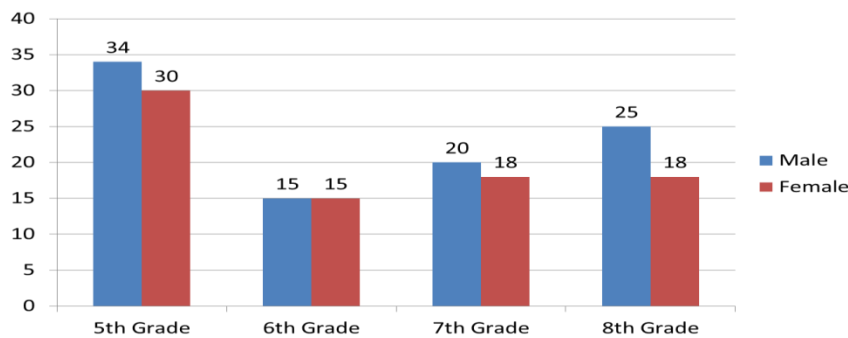


Figure 3: The distribution of participants by gender and grade

Figure 3 includes 34 male and 30 female from 5th grade, 15 male and 15 female from 6th grade, 20 male and 18 female from 7th grade and finally 25 male and 18 female from 8th grade.

Findings

Data collected from drawings show that 68% of secondary school students draw a natural scientist or scientists, 2,28% of those draw a social scientist or scientists and finally the rest draw no scientist (Figure 5).

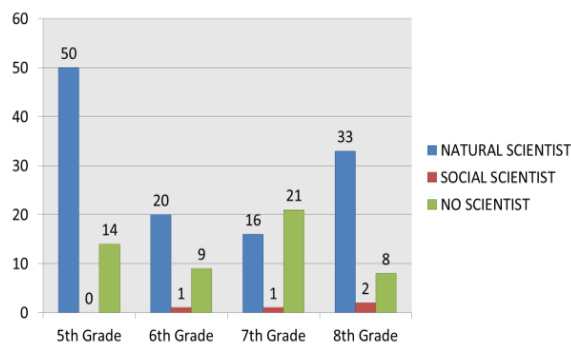


Figure 4: The distribution of participants drew

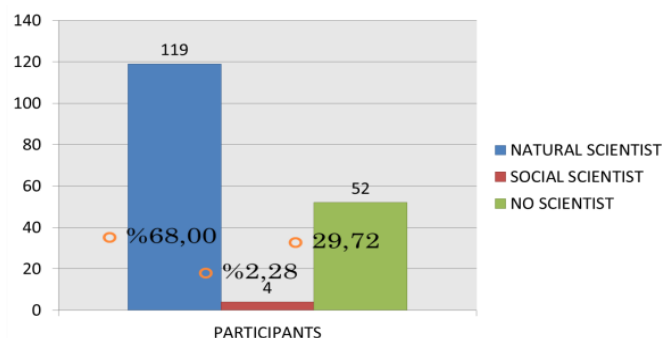


Figure 5: Total distribution of participants drew natural/social scientists or no scientists

In Figure 4, there are 50, 20, 16 and 33 participants drawing natural scientists. Instead, there exist 0, 1, 1 and 2 participants drawing social scientists. Also 14, 9, 21 and 8 participants with no scientist in their drawings in 5th, 6th, 7th and 8th grade, relatively. The rate of drawings including only one scientist is %66,85 while the rate of drawings possess more than two scientists %4,57.

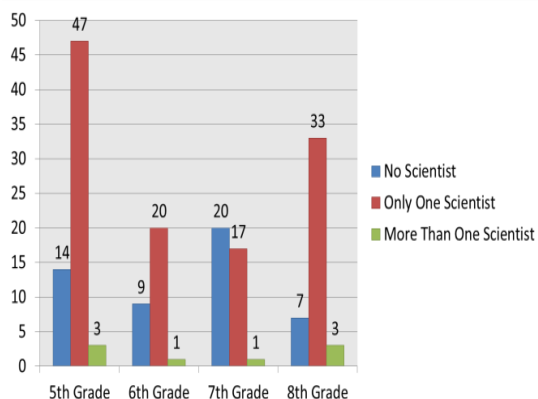


Figure 6: The Distribution of Participants Drew Drawings Scientist/Scientists by Grade

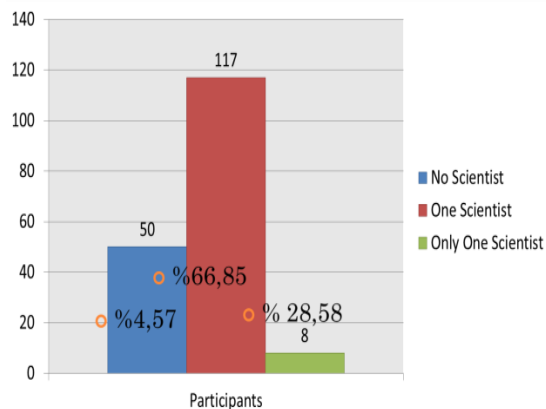


Figure 7: The Total Distribution of Participants With Scientists and No Scientist

The distribution of participants (Figure 6) is given according to drawings with only one scientist, more than one scientist and no scientist. Accordingly, there are 47, 20, 17 and 33 participants drawing only one scientist; 3, 1, 1 and 3 participants drawing more than one and finally 14, 9, 20 and 7 participants drawing no scientist by 5th, 6th, 7th and 8th grades, relatively.

Table 1: *Secondary School Students' Images of Scientists*

Thema 1: Images of Scientists

Codes

Selected Statements

1. Scientist is one who invents something.	"A scientist do experiments and invents"
2. Scientist is one who produces useful works for the future.	"Scientists have contributions for humanity." "Scientists are a people who shed light on the lifes of next generations with their ideas, studies and inventions."
3. Scientist has superior properties.	"Scientists are self-confident, smart, modest and emphatic."
4. Scientist devotes his/her life to science.	"Scientists are tolerant, devoted to science, stood up against all obstacles with their honest personalities."

Analyzing Table 1 given below, students current images of scientists were categorized within four codes. That is, scientist is one who invents something, deals with useful activities, has superior features and devotes himself/herself to doing science according to students' images of scientists. In addition, students tend to show no negative feature or characteristics scientists possess.

When students' current images of scientists, it is seen that there exist four codes. These codes are categorized in the study as "Scientist is one who invents something", "Scientist is one who produces useful works for the future", "Scientist has superior properties" and "Scientist devotes his/her life to science. Looking at these codes, there is a tendency not to refer any negative attribute to scientists. This view is stated by students as follow:

"Scientists are a people who shed light on the lifes of next generations with their ideas, studies and inventions."

"Scientists are tolerant, devoted to science, stood up against all obstacles with their honest personalities."

After the analysis of the images of scientists regarding students' views on how to see themselves in the future, there exist totally four codes as follow: a) the opinion of scientific entrepreneurship should be product-based, b) personal characteristics of scientists, c) the universality of scientific entrepreneurship and d) the effects of science on social life. These codes and related statements are given in Table 2 as well.

Table 2: The Images of Scientists Regarding Students' Views on How to See Themselves in the Future

Thema 2: Students' Images of Scientists in the Future	
Codes	Selected Statements
1. The opinion of scientific entrepreneurship should be product-based (invention, discovery, etc.)	I would like to see myself as the person who invents the most beneficial and durable gadgets.
2. Personal characteristics of scientists (self-confidence, intelligence, recognition, working independently, etc.)	"Scientist likes carrying out research and discovers new things". "I drew a scientist applauded by everyone". "Scientist is one who is well-known, smart and courageous"
3. The universality of scientific entrepreneurship	In my picture, I wanted to tell about people from all over the world with similar aims and their inventions.
4. The effects of science on social life	"Scientist is a person who lives in welfare and serenity stem from science learning among experiments as well as having a social life. I'd like to be a pediatricist. I'm so interested in dealing with diseases children exposed to. Because they often get sick from the very early years of their lives. This makes me unhappy. I promised I would be a pediatricist and do my best to heal them."

Table 3. *The Comparison of Student's Current Images of Scientists and Those in Which They See Themselves As a Scientist in the Future*

Thema 2: The Comparison of Pre and Post Images of Scientists			
1. Drawing Content and Interview Form		2. Drawing Content and Interview Form	
Codes	Selected Statements	Codes	Selected Statements
1. Scientists have universal purposes.	I drew a woman in my first picture. This woman was a scientist. The sea I drew behind the woman refers to the unlimited nature of science as sea.	1. Science as specific to a particular discipline	"Scientists are people who work in certain disciplines."
2. Scientists deal with inventions.	"If I was a scientist, I'd fly with my rocket." "Scientists are smart and invent new things."	2. Decision-making independently	"I invented a machine that works through the energy of fotons."
		3. Creativity	"I tried to show that everything could be succeed." "In my second drawing, I drew myself with my dreams." "I invented a machine working by fotons. I am turning a rainbow to show my delight while travelling in the picture with the purpose of sending anyone else to experience in the pictures they choose."
		4. The value of science	"I want to show the value of science appreciated by people." "I compared money and science. Science surpassed money at the end."
		5. The tentaniveness of scientific knowledge	"We could make mistakes while doing research. But the important thing is here to find out the mistake and eliminate it."
		6. Obstacles encountered by scientists	"I mentioned about challenges Galileo encountered and his efforts to explain phenomenon in the search of reality." "People advise others that science doesn't make money so people should get a job and make money."

The comparison of pre-post images of scientists is given in Tablo 3. These images are tried to be revealed by first drawings and interview forms. Two codes are extracted from first drawings and six codes from second drawings. Some of the statements under these codes are given in Table 3 as well as codes.

Discussion, Result and Recommendations

Scientists are generally perceived as male, bespectacled, wearing a white lab coat. Students mostly regard scientists working in the field of natural sciences as a scientist rather than the others working in social sciences. In addition, they think about science as if it should be necessarily carried out in the indoor areas. Another remarkable finding in the study is that there is no fifth grade student who try to draw any social scientist.

When first and second pictures compared, one of the most striking finding is that codes in the first pictures are highly pointed in the literature. Notwithstanding, it is explored that codes in the second pictures have more and various codes compared to first pictures. In other words, it is stated by students that scientists have universal purposes and deal with inventions in the first pictures, instead, scientists have limited research issues, have the ability of independently decision-making, creative and stand up against obstacles in the second pictures. Finally, they mention about the value of science and tentativeness of scientific knowledge in the context of science and scientific knowledge.

To sum up, findings inferred from drawings show that almost every student keen on being a scientist in the future. But, some of them answered negatively to the question of “Would you like to be a scientist in the future?” during the interviews. This finding refers to a conflict between the findings from drawings and interviews. Similarly, Zhai et al. (2014) in their study point out that some students don't imagine themselves as a scientist on account to the fact that scientists do dangerous experiments by themselves. Students explaining this view, specify that there is no need to listen to the teacher and textbooks are enough to improve themselves. Despite that, there is no considerable body of evidence to claim any correlation between their images of scientists and career plans (Buldu 2006). From all these findings and interpretations, it could be concluded that students have decent beliefs to achieve their dreams on being a scientist. Alike, it could be generalized that cultural environments in which students live has a prominent effect on the construction process of students' views.

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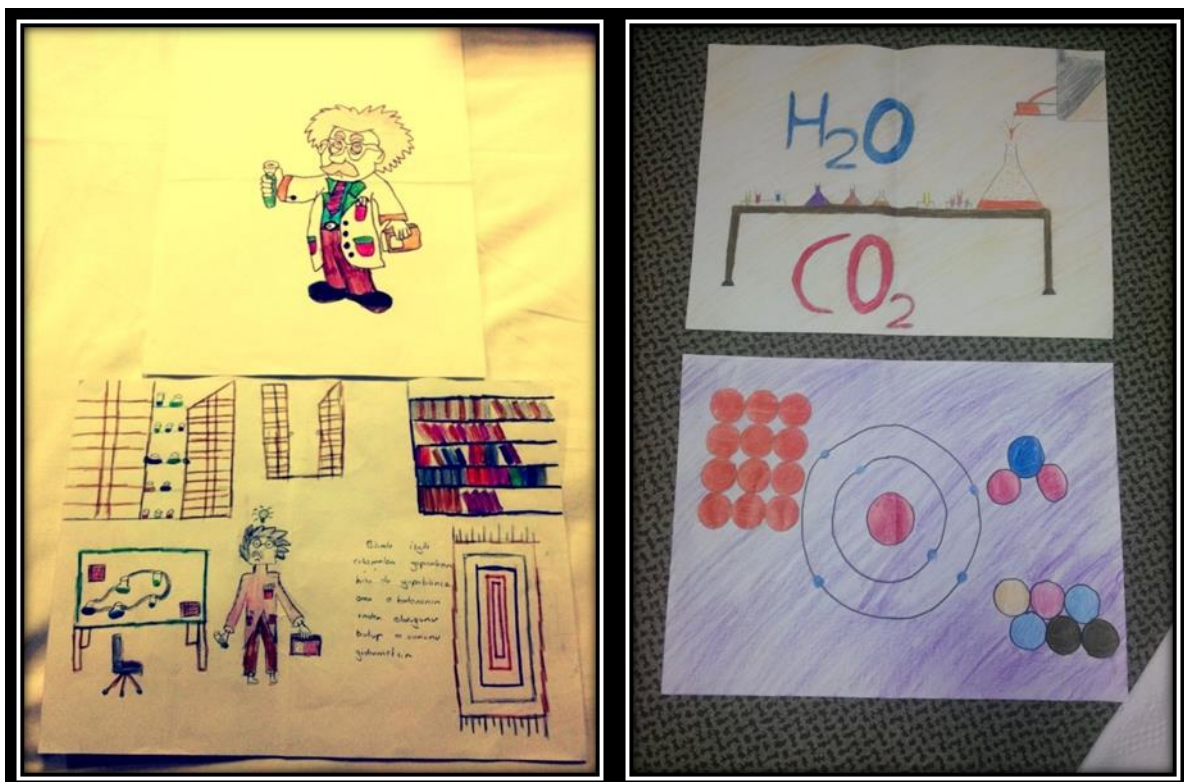
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Selected Drawings



Metacognition in Real Life Situations and Study Skills and Habits: Two Types of Processes

Yasser A. Al-Hilawani*

Yarmouk University, Irbid, Jordan

Abstract

The relationship between metacognition in real life situations and study skills and habits was examined using a sample of college students. Results showed no significant relationship between these two variables nor was there a significant relationship between study skills and reaction time as measured on the metacognitive test. However, there was a positive significant correlation between study skills, and high school and college GPA's; a significant negative relationship between high school GPA and reaction time; and a positive significant correlation between high school GPA and metacognitive test scores calculated based on reaction time. High school GPA was significantly related to study skills and to the relationship between study skills and academic performance as opposed to college GPA. The importance of college GPA as a significant predictor of study skills depends on whether or not students grades were assigned objectively without manipulation or inflation.

Key words: Metacognition, Reaction Time, Study Skills and Habits, College Students, GPA

* Dr. **Yasser A. Al-Hilawani**, Associate Professor of Special Education, Department of Counseling and Educational Psychology, Faculty of Education, Yarmouk University Irbid, Jordan

During the data collected process, the author was working as an Associate Professor of Special Education in the Department of Educational Psychology, College of Education, Kuwait University

Correspondence: : yhilawani@netscape.net

Introduction

Examining the relationship between metacognition in real life situations, on one hand, and study skills and habits, on the other hand, at the college level is unique in a way that study skills and habits are mainly a sequential process while metacognition is a simultaneous process that relies on visual spatial perception (see Al-Hilawani, 2008; Al-Hilawani & Sartawi, 1997). Exploring this relationship is also unique because study skills and habits are considered academic metacognitive processes.

Literature review revealed no research targeting the relationship between study skills and habits and metacognition using the same group of students. Studies reviewed in this paper showed that these areas have been examined separately and that metacognition as viewed in this research has been examined basically in young children and not in college students. This is the first time where metacognitive processing and study skills and habits are being examined in college age students.

The novelty of this present study also stems from exploring the effect of *reaction time* in relation to other variables such as metacognition. Traditionally, examining reaction time was associated with measuring students' intelligent quotient (IQ) in a laboratory setting (e.g., Bates & Stough, 1998). This current study, however, used cartoon drawings that depicted real life knowledge and situations to represent the naïve psychology, the naïve physics, and the naïve biology domains to examine the relationship between reaction time and metacognition using university students. These three domains focus on knowing about people, plants and animals, and physical objects as they exist in the natural environment (Wellman & Gelman, 1992).

The following sections are overviews of metacognition, reaction time, and study skills and habits as related to this current research:

Metacognition

The concept of metacognition (Flavell, 1978) has been around among educators and psychologists for some times to explain and understand students' behaviors in academic and non-academic settings. Al-Hilawani, Marchant, and Poteet (1994) mentioned that the importance of this concept comes from its value to explain differences in learning noticed in school-age students by focusing on examining (1) their self-management skills, self-regulatory behaviors, and/or self-awareness necessary to monitor one's self during the learning process and (2) their choice and implementation of learning strategies required to complete, understand, retain, and transfer given tasks. Learning strategies are considered in this context a form of metacognitive processes. Metacognition in this context is considered a way to control actions related to academic demands that are complicated to be managed automatically (Trainin & Swanson, 2005).

Recently, Al-Hilawani (2008) expanded the traditional meaning of metacognition (i.e., academic metacognition) to refer to strategic employment of one's cognitive processes and resources to construct knowledge in a meaningful manner and to devise thinking and problem solving skills to reach understandings and insights of the natural and surrounding environment (i.e., real life situation-metacognition). This meaning refers to employing one's higher order thinking processes of recognition, discrimination, judgment, and cognitive restructuring of events; and is achieved through the mental process of thematic and common features analysis and discrimination. Thematic analysis referred to stimuli that reflected the same theme but showed different objects, events, situations, and human behaviors. Common feature analysis meant that stimuli showed elements related to each other. The required task demand for this complex mental process is performing the mental activity of grouping, categorizing, sorting, and classifying objects by use, color, shape, size, length, and/or weight; and performing problem-solving activities in terms of object use, size, shape, and color.

Measuring metacognition as related to visual analyses and discriminations of real life situations, compared to academic situation, focused on the visual-spatial perception modality of

information processing, an approach suitable for students who are strong in processing information visually and considered appropriate for students who have low verbal repertoire or hearing loss (Al-Hilawani, 2008). This approach was operationalized by using pictures to assess abilities related to accurate syntheses, analyses, perceptions, judgments, predictions, and explanations of what students usually experience in real-life situations.

Reaction Time

Reaction time could affect students' social interactions because students who are slow in responding to demands, to requests, and/ or to social cues may face negative consequences. Initially, reaction time was studied with reference to students' intelligence quotient (IQ). Research shows that there is a correlation between reaction time and IQ; individuals with high ability processed information faster than those with low ability (e.g., Bates & Stough, 1998).

Reaction time was also examined with reference to college students' emotional states. Studying undergraduate college students revealed that subjecting these students to social exclusion led to emotional distress and to slow reaction time to the presented stimuli. Twenge, Catanese, and Baumeister (2003) reported that undergraduate students who were rejected by their peers exhibited a slower reaction time when compared to socially accepted students, who were more accurate in their estimation of elapsed time, in a reaction time game. Social rejection affected executive functioning by slowing down responses to unfamiliar tasks but not automatic responses to familiar ones.

Studying the relationship between metacognition and reaction time has not been examined previously using college students. Reaction time refers in this study to the time needed to process and then to respond correctly to the presented stimuli.

Study Skills and Habits

Appropriate study skills and habits are associated positively with learning performances (Hoover, 1989). Reviewing the literature (e.g., Jones, Slate, & Kyle, 1992) revealed that study skills and habits are essential tools and activities needed for learning independently (i.e., learning how to learn) and for acquiring purposeful and intended knowledge at various levels of education. This literature showed that study skills and habits are among the variables to consider when examining academic achievements at the school level (e.g., Stanley, Slate, & Jones, 1999) or at the college level among those with learning disabilities (LD) and attention deficit hyperactivity disorder (ADHD) or among normally developing students (e.g., Proctor, Prevatt, Adams, Reaser, & Petscher, 2006; Reaser, Prevatt, Petscher, & Proctor, 2007). The overall research results at the college level showed that those with inadequate study skills and habits (whether or not they have academic difficulties such as learning disabilities) are considered at-risk as they are unprepared or underprepared to start a successful college education.

Study skills and habits are considered a form of metacognitive processing because they help students during the learning process to acquire, retain, and produce the new information. They cover activities such as self-testing, self-regulating, and managing time. These activities are important for knowing, knowing what to know, and knowing how to know to acquire the verbal knowledge. They link comprehension with memorization. Therefore, metacognition in the form of one's awareness and understanding of learning strategies and the timing of their application is related to academic performance. This could explain why students with high GPA possess better metacognitive strategies in the form of better study skills and habits than students with low GPA (e.g., Al-Hilawani & Sartawi, 1997). It could also explain the positive relationship between study skills and habits, on the one hand, and metacognition, as related to acquiring knowledge from text, on the other hand.

Significance of the Study

This study was conducted to answer the question of whether or not there was a significant relationship between study skills and habits needed to succeed in the academic realm, on the one hand, and metacognition in terms of analyzing pictures, on the other hand. While measuring metacognition and study skills and habits are apparently distinct from each other, they both involve thinking in a problem solving manner to accomplish successfully a specific task. This study was also conducted to examine the relationship between reaction time on the test of metacognition, performance on the study skills questionnaire, and some demographic variables (i.e., monthly income, the number of family members, and the type of high school diploma: science or arts streams).

An assumption in this study is that thinking in a problem solving manner is efficient when it is based on a domain-specific knowledge. A second assumption is that a domain-general knowledge is still in use and is needed, as a frame of reference, in the absence of or sometimes concurrently with domain-specific knowledge. This assumption is considered when preparing remediation and intervention programs in both metacognition and study skills and habits.

A third assumption is that metacognition may be assessed on a continuum ranging from low scores for young school students or students with cognitive disabilities to higher scores for more abled and college students.

Participants

A total of 191 undergraduates (mean age = 20.52 years; SD = 1.76 years; age range = 17.44 to 25.92 years; n = 190; one case did not indicate her date of birth and therefore excluded from the study) were recruited to participate in this research. Participants represented various colleges: Education (n = 118), law (n = 9), arts (n = 16), science (n = 20), engineering (n = 7), allied health science (n = 11), and social sciences (n = 6). There were four cases of new undergraduates who did not specify their colleges. There were 114 females (mean age = 20.38 years; SD = 1.70 years; age range = 17.44 to 25.84 years; n = 113; one female did not mention her date of birth) and 77 males (mean age = 20.71 years; SD = 1.83 years; age range = 17.85 to 25.92 years): 52 freshman, 40 sophomores, 43 juniors, 52 seniors, and 4 students who did not report their class standing.

Instrumentation

First: Study Skills and Habits.

Data gathered using a modified version of the instrument constructed by Al-Hilawani and Sartawi (1997). The modification was rewording and clarifying some of the 55 items. The first part covered demographic information which included gender, date of birth, high school and college GPA's, type of high school diploma (arts or science), years in college (i.e., class standing), major, and estimate of monthly income. The second part contained 55 items (see Appendix A/ Part B). Al-Hilawani and Sartawi put these items in a four-point likert-type scale format. Responses to these series of statements after modifications and rewording were *not applicable* (assigned 1 point), *rarely* (assigned 2 points), *sometimes* (assigned 3 points), and *always* (assigned 4 points). Twenty four items were worded positively while 31 items were worded negatively. All negative items were reverse-scored. A total high score would indicate good study skills and habits while a low score would indicate otherwise.

Each of the 55 items was correlated with the total score to identify weak and/or negatively correlated items. Analysis revealed one item to have a significant but negative correlation with total score (Item # 13: I usually read a newspaper / a story slowly and carefully; $r = -.21, p < .003$). This item was removed from final analysis but it was kept in the appended copy. It is to mention that the same concept was covered by another item in the instrument and did not correlate significantly with the total score (Item # 35: I read slowly to grasp the general idea; $r = .10, p = .154$). Analysis showed another item that did not correlate significantly with the total score (Item # 39: I always ask the

instructor to repeat what s/he said; $r = .10$, $p = .153$). These two items were used along with the rest to analyze the data obtained because removing the two items did not improve dramatically the reliability level which was .89 when using 52 items whereas using the 54 items yielded a reliability coefficient (alpha) of .88. The significantly correlated items with the total score (i.e., 52 items) ranged from $r = .16$, $p < .03$ to $.65$, $p < .001$.

Second: Metacognition Test

The test of metacognition (e.g., Al-Hilawani, Dashti, & Abdullah, 2008) was constructed based on the view that cognitive development is domain specific (Wellman & Gelman, 1992) and that metacognition could be approached and measured in daily life situations using pictures. Wellman and Gelman suggested, based on their literature review, three possible commonsense framework theories which are the naïve physics, the naïve psychology, and the naïve biology domains. Examples on the three knowledge domains as reported in Al-Hilawani et al's (2008, p. 143) study are mentioned below: "*naïve psychology include[s]... internal-mental states, such as desire, sadness, pain, fear, anger, disgust, surprise, and happiness. Examples of naïve physics include cause-effect relationships and understanding the identification, classification, and transformation of physical objects. Examples of naïve biology include identifying and understanding the processes of organic growth, reproduction, inheritance, classification, eating and sleeping, and illness and death, among others*".

The metacognitive instrument consisted of 28 computerized cartoon drawings test questions (i.e., 12 test items representing the biology domain, 7 test items representing the physics domain, and 9 test items representing the psychology domain). Each test item was formed of a target picture and four options of pictures. One of the four options was the correct choice because it matched with or it related directly to the target picture. The metacognition tool was transformed into a computerized test to measure students' reaction time.

The sequence of the 28 test items and their options was counterbalanced and presented to each participant in a random order. Each test item was timed to appear on the computer screen for one minute. If the student did not select within the one-minute period one of the four options as an answer to the presented picture, the next test item would appear immediately on the computer screen. The maximum time allowed to complete this test was 30 minutes: 28 minutes for the actual test and 2 minutes for the two trial exercises. Each test question answered correctly was assigned one point. Thus, the maximum possible score that a student could receive was 28 out of 28.

The correlation of each metacognitive item with the total score was obtained to remove irregular test items from the final analysis. It was expected that because this instrument has been designed to cover a wide age range, a ceiling effect in performance would appear when administered to college participants. Results showed that students' responses varied on 22 items all of which correlated significantly with the total score (correlations ranged from $r = .19$ to $r = .56$). Results also showed that all students responded to the rest of items (i.e., six items) with 100% accuracy. Four of these six items were from the biology domain (i.e., passing hereditary traits, growth, knowledge of carnivores and herbivores, and transformations), one item was from the physics domain (i.e., matching object use and identification), and one item was from the psychology domain (i.e., sadness). These six items were not removed from the test. The yielded reliability coefficient (alpha) was .74.

When obtaining the correlations of correct items calculated based on mean reaction time, the ceiling effect disappeared and 27 items correlated significantly with the total score calculated based on mean reaction time (correlations ranged from $r = .18$ to $r = .53$). The item that did not correlate with the total score was from the biology domain (i.e., illness; $r = .08$; $p = .25$). The yielded reliability coefficient (alpha) was .75. This coefficient alpha level is acceptable for research purposes (Nunnally, 1967).

Procedures

All recruited students responded to a questionnaire and then to items in the form of pictures presented on a computer screen. They were not informed about the nature of the questionnaire or the pictures. The steps and procedures mentioned in Al-Hilawani et al's (2008) research concerning administering the computerized metacognitive tool were followed and implemented in this current study. Each student was guided through two trial test items on the metacognitive test. The first trial test item presented on the computer screen was a picture of an apple and four options— two kittens, three bananas, an open book, and a robot. Students were required to point to the option related to or matched with the target picture. The second trial test item showed a target picture of a red circle and the options of three red triangles and a red circle. Students were required to point to the shape related to or matched with the target picture. When students selected the best option out of the four available pictures, the author clicked on that option with the mouse. When students finished taking the two trial exercises, they proceeded to take the actual test. When a student finished taking the test, the computer program automatically stored the test results. Responding to the study skills questionnaire and to the metacognition test took approximately 25 to 35 minutes.

Results

The two instruments yielded four dependent variables: The total score on the study skills and habits questionnaire, students' correct responses on the metacognitive test, reaction time, and the correct responses calculated based on the mean reaction time to each of the 28 test items. 28 mean reaction times were used to determine if a student should receive a zero point or a one point for each of the 28 test items. If the response was correct and fell at or below the calculated mean of reaction time, the computer would assign one point for responding to that item. If the response was correct but exceeded the assigned mean reaction time, the computer would assign a zero point for that particular item.

Means and Standard Deviations

Table 1 shows means and standard deviations of raw scores on the study skills and habits questionnaire, the test of metacognition, students' reaction time, and scores based on the mean reaction time. It appears in this table that female college students obtained better raw scores on the four dependent variables compared to male students and that the means of correct scores on the metacognitive test for males and females decreased when calculating the metacognitive scores based on mean reaction time.

Table 1. *Study Skills and Habits Scores, Metacognitive Test Scores, Reaction Time, and Test Scores Based on Reaction Time.*

Student groups	Study skills and habits			Scores on metacognitive test		Reaction time in seconds		Metacognitive scores based on reaction time	
	<u>n</u>	<u>M</u>	<u>SD</u>	<u>M</u>	<u>SD</u>	<u>M</u>	<u>SD</u>	<u>M</u>	<u>SD</u>
College Sample	191	3.03	.29	19.73	2.81	145.29	30.99	12.31	4.56
Males	77	2.96	.31	19.55	2.80	146.87	29.24	11.91	4.82
Females	114	3.07	.27	19.85	2.82	144.22	32.20	12.59	4.37

Pearson Product-Moment Correlations

Table 2 shows no significant correlations between study skills, on the one hand, and metacognitive scores, reaction time, and test scores based on reaction time, on the other hand. The table shows that study skills, and high school and college GPA's correlated significantly but negatively with the *sex* variable, indicating that females had better study skills and higher high school and college GPA's than males.

The table shows that high school and college GPA's correlated significantly with each other and that both correlated significantly with study skills. Students with high GPA's in high school and in college had better study skills and habits than students with low GPA's. The table shows a negative significant correlation between high school GPA and reaction time and a positive significant correlation between high school GPA and metacognitive test scores calculated based on reaction time. It appears that time is significantly associated with students' performance in a way that students with high GPA in high school took less time and got more correct responses on the test than those with low GPA.

The table shows that reaction time had a negative significant correlation with metacognitive scores based on reaction time and with monthly income. This means that time influences the number of correct responses on the test and that those with lower monthly income took more time compared to students with higher monthly income.

Finally, table 2 reveals a positive significant correlation between high school GPA and the type of high school certificate; those who were enrolled in the arts stream obtained higher GPA than those enrolled in the science stream.

*Table 2:
 Pearson Product-Moment Correlations of the Study Skills and Habits Scores, Metacognitive Scores, Total Time, Metacognitive Scores based on Reaction Time with Student Variables*

Variables	1	2	3	4	5	6	7	8	9	10	11	12
College Sample												
1. Study skills (N=191)	1.00											
2. Metacognitive Scores (N=191)	.02	1.00										
3. Total time (N=191)	-.09	.04	1.00									
4. Metacognitive scores based on reaction time (N=191)	.05	.49**	-.75**	1.00								
5. Gender (N=191)	-.20**	-.05	.04	-.07	1.00							
6. Age (N=190)	.04	.08	.07	-.01	.09	1.00						
7. High school GPA (N=184)	.18*	.04	-.21**	.16*	-.25**	-.18*	1.00					
8. College GPA(N=174)	.20**	.04	.01	-.03	-.34**	-.09	.28**	1.00				
9. Year of study (N=187)	.04	.04	-.02	.06	.03	.75**	.01	.02	1.00			
10. Monthly income (N=149)	-.10	-.04	-.18*	.15	.10	-.17*	.10	-.05	-.09	1.00		
11. Number of family members (N=191)	.10	.04	-.02	.04	-.01	-.05	-.06	-.06	-.14	.05	1.00	
12. High school certificate type (N=190)	.11	.02	.03	.01	-.09	.17*	.15*	.13	.19**	-.14	.09	1.00

Note: * = $p < .05$, ** = $p < .01$

Analysis of Variance and Covariance

One-Way Analysis of Variance (ANOVA) was conducted to find if there was a significant age difference between males and females. ANOVA showed no significant age difference between males and females, $F(1, 188) = 1.621, p = .204$. Another ANOVA was performed to find a significant difference between males and females on the test of metacognition. ANOVA showed no significant difference between males and females on the metacognitive test, $F(1, 189) = .541, p = .463$.

Due to the correlations reported in table 2, two Univariate Analysis of Covariance (ANCOVA) were performed to examine differences between males and females in reaction time and in metacognitive test scores based on reaction time. In the first ANCOVA analysis, high school GPA and monthly income were used as covariates to control their effect on reaction time. The ANCOVA analysis revealed that the high school GPA covariate was significant, $F(1, 139) = 4.357, p < .04 (\eta^2 = .030, \text{weak effect size})$, the monthly income covariate almost reached the significant level, $F(1, 139) = 3.771, p = .054 (\eta^2 = .026, \text{weak effect size})$, but no significant difference between males and females in reaction time, $F(1, 139) = .040, p = .842 (\eta^2 = .001, \text{weak effect size})$. In the second ANCOVA analysis, high school GPA was used as a covariance to control its effect on scores calculated based on reaction time. The ANCOVA analysis showed that the high school GPA covariate was significant, $F(1, 181) = 4.011, p < .05 (\eta^2 = .022, \text{weak effect size})$, but showed no significant difference between males and females in scores calculated based on reaction time, $F(1, 181) = .057, p = .812 (\eta^2 = .001, \text{weak effect size})$.

ANCOVA was also conducted to examine differences in performance between males and females on study skills and habits. High school and college GPA's were used as covariates. The ANCOVA analysis showed that the high school GPA covariate was significant, $F(1, 165) = 4.419, p < .04 (\eta^2 = .026, \text{weak effect size})$, but the college GPA covariate was not significant, $F(1, 165) = 2.124, p = .147 (\eta^2 = .013, \text{weak effect size})$. ANCOVA identified no significant differences between males and females in scores on study skills and habits questionnaire when controlling the effect of high school and college GPA's, $F(1, 165) = .701, p = .404 (\eta^2 = .004, \text{weak effect size})$. When not controlling the effect of high school and college GPA's, results of ANOVA showed significant effect for the sex variable in which females performed better than males on study skills and habits questionnaire, $F(1, 189) = 7.670, p < .006 (\eta^2 = .04, \text{weak effect size})$; see table 1 for means and standard deviations).

Series of Analysis of Covariance

The first series of ANCOVA analyses was performed to examine differences on the four dependent variables (i.e., study skills, metacognitive score, reaction time, and metacognitive score based on reaction time) based on the type of high school certificate. Table 2 showed two relevant covariates, students' age and high school GPA. While the year of study variable is correlated with the type of high school certificate, it is considered irrelevant in this particular section. ANCOVA results showed that the age covariate was significant, $F(1, 179) = 4.054, p < .04 (\eta^2 = .022, \text{weak effect size})$ and the high school GPA covariate was also significant, $F(1, 179) = 8.179, p < .01 (\eta^2 = .044, \text{weak effect size})$. But no significant difference in study skills and habits scores was found based on the type of high school certificate, $F(1, 179) = .122, p = .728 (\eta^2 = .001, \text{weak effect size})$. The type of high school certificate is not significantly related to students' study skills and habits.

The next ANCOVA results showed that the age covariate was not significant, $F(1, 179) = 2.615, p = .108 (\eta^2 = .014, \text{weak effect size})$, the high school GPA covariate was not significant, $F(1, 179) = .796, p = .374 (\eta^2 = .004, \text{weak effect size})$, and no significant difference in metacognitive test scores when examined based on the type of high school certificate, $F(1, 179) = .009, p = .923 (\eta^2 = .001, \text{weak effect size})$. The type of high school certificate is not significantly related to students' metacognitive test scores.

The subsequent ANCOVA results showed that the age covariate was not significant, $F(1, 179) = .047$, $p = .828$ ($\eta^2 = .001$, weak effect size) but the high school GPA covariate was significant, $F(1, 179) = 8.587$, $p < .01$ ($\eta^2 = .046$, weak effect size). There was no significant difference in reaction time when examined based on the type of students' high school certificate, $F(1, 179) = .678$, $p = .411$ ($\eta^2 = .004$, weak effect size). The type of high school certificate is not significantly related to reaction time.

The final ANCOVA results showed that the age covariate was not significant, $F(1, 179) = .424$, $p = .516$ ($\eta^2 = .002$, weak effect size) but the high school GPA covariate was significant, $F(1, 179) = 5.442$, $p < .02$ ($\eta^2 = .030$, weak effect size). No significant difference was identified in metacognitive scores calculated based on mean reaction time when examined based on the type of students' high school certificate, $F(1, 179) = .112$, $p = .739$ ($\eta^2 = .001$, weak effect size). The type of high school certificate is not significantly related to metacognitive scores calculated based on mean reaction time.

It appears that students' study programs (i.e., science stream compared to arts stream) had no significant effect on their performances on the four dependent variables. It also appears that the high school GPA is a contributing covariate.

The second series of ANCOVA analyses was conducted to examine differences on the four dependent variables based on students' year of study (i.e., freshman, sophomores, juniors, and seniors) with age as a covariate. ANCOVA results showed that the age covariate was not significant, $F(1, 181) = .018$, $p = .895$ ($\eta^2 = .001$, weak effect size) and revealed no significant differences between the groups of students in study skills, $F(3, 18) = .263$, $p = .852$ ($\eta^2 = .004$, weak effect size). In the next analysis, the age covariate was not significant, $F(1, 181) = .302$, $p = .583$ ($\eta^2 = .002$, weak effect size) and the differences on the metacognitive test were not significant, $F(3, 181) = .563$, $p = .640$ ($\eta^2 = .009$, weak effect size). The age covariate in the next analysis was not significant, $F(1, 181) = 2.623$, $p = .107$ ($\eta^2 = .014$, weak effect size) nor was the difference between groups in reaction time, $F(3, 181) = 1.190$, $p = .315$ ($\eta^2 = .019$, weak effect size). The age covariate in the last analysis was not significant, $F(1, 181) = 1.853$, $p = .175$ ($\eta^2 = .010$, weak effect size) nor was the difference between groups in metacognitive scores based on mean reaction time, $F(3, 181) = 1.048$, $p = .373$ ($\eta^2 = .017$, weak effect size). It seems that students' year of study does not affect performance significantly on the four dependent variables. The age covariate was not significant, either.

The third series of ANCOVA analyses was performed to examine differences on the four dependent variables based on students' college GPA (i.e., low [up to 79 GPA; $n=76$], mid [80 to 89 GPA; $n=70$], and high [90 and more GPA; $n=23$]) using high school GPA as a covariate. Analysis showed that the high school GPA covariate was significant, $F(1, 165) = 5.010$, $p < .03$ ($\eta^2 = .029$, weak effect size) but no significant differences among groups in study skills, $F(2, 165) = 2.259$, $p = .108$ ($\eta^2 = .027$, weak effect size). The next ANCOVA analysis revealed that the high school GPA covariate was not significant, $F(1, 165) = .004$, $p = .951$ ($\eta^2 = .001$, weak effect size) nor was the difference in metacognitive test, $F(2, 165) = .451$, $p = .638$ ($\eta^2 = .005$, weak effect size). In the subsequent ANCOVA analysis, the high school GPA covariate was significant, $F(1, 165) = 8.829$, $p < .02$ ($\eta^2 = .051$, weak effect size) but the difference between the three groups in reaction time was not significant, $F(2, 165) = 2.110$, $p = .125$ ($\eta^2 = .025$, weak effect size). The final ANCOVA analysis showed that the high school GPA covariate was significant, $F(1, 165) = 5.981$, $p < .02$ ($\eta^2 = .035$, weak effect size). However, the difference in metacognitive test based on reaction time was not significant, $F(2, 165) = 2.255$, $p = .108$ ($\eta^2 = .027$, weak effect size). This analysis shows that the high school GPA is a significant covariate in study skills, in reaction time, and in scores calculated based on reaction time and that the three levels of college GPA are not significantly related to any of the four dependent variables.

The final series of ANCOVA analyses was performed to examine differences on the four dependent variables based on students' high school GPA (i.e., low [up to 79 GPA; $n=70$], mid [80 to 89 GPA; $n=79$], and high [90 and more GPA; $n=35$]) using age and college GPA as covariates. The

first analysis showed that the age covariate was not significant, $F(1, 163) = 3.087, p = .08$ ($\eta^2 = .019$, weak effect size), but the college GPA was significant, $F(1, 163) = 4.955, p < .03$ ($\eta^2 = .030$, weak effect size). There were significant differences in study skills due to students' GPA level, $F(2, 163) = 3.444, p < .03$ ($\eta^2 = .041$, weak effect size). The Bonferroni follow-up analysis revealed one significant difference between students with *high* GPA and those with *low* GPA.

The next ANCOVA analysis showed that the age covariate was significant, $F(1, 163) = 6.273, p < .01$ ($\eta^2 = .037$, weak effect size), but the college GPA was not, $F(1, 163) = .041, p = .841$ ($\eta^2 = .001$, weak effect size). Differences in metacognitive test based on levels of high school GPA were not significant, $F(2, 163) = .743, p = .477$ ($\eta^2 = .009$, weak effect size).

Subsequent ANCOVA showed that the age covariate was not significant, $F(1, 163) = .138, p = .711$ ($\eta^2 = .001$, weak effect size), and the college GPA covariate was not significant, $F(1, 163) = 3.507, p = .063$ ($\eta^2 = .021$, weak effect size). However, there were significant group differences in reaction time between the three levels of high school GPA, $F(2, 163) = 4.721, p < .01$ ($\eta^2 = .055$, weak effect size). The Bonferroni follow-up analysis revealed that the high (mean reaction time = 136.029) and the mid (mean reaction time = 142.809) GPA groups took significantly less reaction time compared to the low GPA group (mean reaction time = 155.098). No significant difference was found between the mid and the high groups.

The final ANCOVA analysis showed that the age covariate was not significant, $F(1, 163) = 1.524, p = .219$ ($\eta^2 = .009$, weak effect size) but the college GPA covariate was significant, $F(1, 163) = 4.463, p < .04$ ($\eta^2 = .027$, weak effect size). Differences in metacognitive test based on reaction time between the three levels of students' high school GPA were significant, $F(2, 163) = 4.225, p < .02$ ($\eta^2 = .049$, weak effect size). The Bonferroni follow-up analysis revealed that the high and the mid GPA groups performed significantly better compared to the low GPA group. No significant difference was found between the mid and the high groups.

It is apparent that high school GPA is significantly related to study skills and habit and to the relationship between study skills and later academic performance when compared to college GPA. It is also apparent that there is a significant relationship between high school GPA and reaction time. Therefore, a multiple regression was performed to determine the variables that accounted for a significant amount of unique variance in students' study skills.

Multiple Regression Analysis

A multiple regression analysis was performed to find how well high school and college GPA's, students' year of study, students' age and gender, monthly income, number of family members, type of high school certificate, reaction time, scores on the metacognitive test, and scores based on reaction time (i.e., 11 predictors) predicted students' scores on the study skills and habits instrument (i.e., the criterion variable). Table 3 shows that the multiple regression equation was significant and that the high school GPA and the number of family members were the only variables that accounted for a significant amount of unique variance in the prediction of study skills and habits.

Table 3: *Multiple Regression Analysis Predicting the Dependent Variable.*

Predictor	Beta	t	R	R ²	Adjusted	Overall F
<i>Study Skills as the Criterion Variable</i>						
High School GPA	.328	3.615**				
College GPA	.056	.633				
Year of Study	.123	1.337				
Students' Age	.020	.245				
Monthly Income	-.130	-1.500				
Number of Family Members	.244	2.812**				
High School Certificate Type	.014	.152				
Metacognitive Test	.093	.713				
Reaction Time	-.145	-.818				
Metacognitive Scores based on Reaction Time	-.098	-.479				
Gender Variable	-.053	-.612				
Constant		3.369**				
Overall			.442	.195	.123	2.690**

*Note: * = p < .05, ** = p < .01*

Discussion

This study examined the relationship between metacognition and study skills and habits using a sample of college students. Results showed no significant association between performances on the two types of measures, an indication that they targeted distinct types of processes that capitalize on problem solving and thinking skills but in different contexts. Literature (e.g., Al-Hilawani & Abdullah, 2010) indicated that metacognition as measured in this study is related to the concept of intelligence; it is linked to practical intelligence as compared to academic or other forms of intelligences (Wagner, 2000). Wagner mentioned that a correlation between practical and academic intelligences varied from large to non-existence contingent upon the type of tests used.

This study showed no significant difference between males and females on the metacognitive test, in reaction time, and in scores calculated based on reaction time. This finding of no gender-based significant differences is consistent with results reported on younger age students (e.g., Al-Hilawani et al., 2008). While no significant difference was found between males and females in scores on the study skills questionnaire when controlling the effect of high school and college GPA's, females performed better than males on this questionnaire when the effects of GPA at the high school and college levels were not controlled. This result is expected when examining a such matter in a conservative and a tribal society where cultural and family expectations influence males and females daily routines and future expectations. It appears that students' academic performances and the overall social aspects and conditions, among others, are intertwined and interconnected in a way that attending to one factor to explain a phenomena to a degree of excluding others would lead to insufficient and inaccurate clarifications. Stating that females have better study skills and habits is inaccurate in the presence of interfering family, social, and cultural variables. This statement is applicable to high school and college GPA's.

This study also showed that students with lower monthly income took more time on the test of metacognition compared to students with a higher monthly income. This is the first time a such result is reported in this kind of research. Searching the literature has not revealed studies on this issue. Future research may examine this matter in depth and determine the personal profile of individuals in this regard.

This study showed that students in the arts stream obtained higher high school GPA than those enrolled in the science stream. This demonstrates that studying topics such as history and geography in the arts stream is easier, in terms of getting higher grades, than studying topics such as mathematics, physics, chemistry, and biology. Students are more likely to get higher GPA in high school if they are enrolled in the arts stream compared to the science stream.

This study showed that time played an important role in yielding significant differences between groups of students. While it is invisible, the effect of time becomes obvious when it is used as a criterion in measuring performance such as the number of correct responses on the test of metacognition.

Although research showed significant relationship between the college GPA and study skills (e.g., Proctor et al., 2006), this present study demonstrated that the high school GPA is significantly and more genuinely related to study skills and habits and to the relationship between study skills and academic performance compared to the college GPA. This result is supported by the outcome of the multiple regression analysis which showed that the high school GPA and the number of family members accounted for a significant amount of variance in the prediction of study skills and habits. The finding that high school GPA is significantly related to students' study skills, unlike college GPA, cast doubt on the criteria used to assign college grades in the institution where this study was conducted.

Referring further to the result of multiple regressions, it seems that having a large family helps in acquiring needed study skills and habits in a way that family members help each other with academic works and with the best study practices. While no research is found on the effect of family size on study skills and habits, it is found that interactions among siblings and family members facilitate performance and understanding on false-belief tasks and enhance general language ability (e.g., Jenkins & Astington, 1996).

Limitations

This study has some limitations. It used a small and a convenient sample of university students. Students from all university colleges could not be represented sufficiently to examine differences on the four dependent variables. Had a representative sample been selected, an adequate response could have been obtained to the issue of which college did not contribute to the college GPA not being a significant predictor of study skills. It could have provided information on whether or not grade inflation is a problematic trend in all colleges or it is confined to a specific one.

Implications

This study showed metacognition not to be significantly related to study skills and habits which indicates that both processes could be different from each other. Although tasks used to measure these two processes seem distinct from each other, they are significantly linked to high school GPA via the time variable which seems to be the connection between these two types of processes.

In general, metacognition and study skills and habits are associated with ability of learning how to learn but in different contexts: academic and non-academic. This could explain why some students who are not doing well in academia are being successful in the non-academic and practical world. For example, enhanced and improved one's awareness of naïve biology, naïve physics, and

naïve psychology of daily life practices definitely improves one's social competency skills in real life situations but not one's study skills and habits. To improve study skills and habits, they should be performed within domain specific areas using materials designed to cover all important skills that students should master and that focus on explicit verbal exchange and interactions to help integrate new knowledge into the students' conceptual systems (see Sternberg, 1998).

It appears that the high school GPA, obtained by administering exams in a controlled environment and possibly away from personnel connections and subjective interference and favors, provides accurate information on students' study skills and habits. It also appears that the university GPA, unlike the high school GPA, does not reflect strongly the skills and habits that students have, casting doubts on the value of college GPA in this present study. This critical issue should be addressed and dealt with effectively by the university administration.

Finally, whether students should master all study skills or selective ones should be based on needs assessments. This could result in designing a program for particular students that could make a difference in their pursuit of future academic endeavor.

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**Appendix A (Part B):
 The Study Skills and Habits Questionnaire
 (Responses: Not Applicable = 1; Rarely = 2; Frequently = 3; Always = 4)**

Item Number	Item	Item Number	Item
1	I can understand all the instructor says in class.	11	I prepare sufficiently for exams a head of time.
2	I can take notes during lesson /material presentations.	12	I study hard for exams.
3	I study alone.	13	I usually read a newspaper / a story slowly and carefully.
4	I need to take many breaks during studying.	14	I devote enough time to my assignments.
5	I have problems using punctuation marks.	15	I follow instructor's instruction in class.
6	I can not study without listening to the radio or music.	16	I do not study all required materials when preparing for exams.
7	I am a good listener to class discussion.	17	I forget what I have studied.
8	I allocate time to my various assignments.	18	I have difficulties organizing my thoughts when writing.
9	I asked my classmates in class to explain what the instructor says.	19	I finish all my assignments.
10	I ask the instructor about ambiguous questions.	20	I get distracted during studying when hearing any sound.
		21	I listen carefully to instruction in class before responding to questions.

Continued: Appendix A

Item Number	Item	Item Number	Item
22	I am indifferent about exams.	35	I read slowly to grasp the general idea.
23	I face problems reading some words in the unit/chapter/ lesson.	36	I have difficulties expressing my thoughts in writing.
24	I encounter spelling difficulties.	37	I manage effectively leisure time and study time.
25	I usually request assistance when doing my assignments.	38	I always get distracted when trying to study.
26	I depend in my study on instructor's discussed and presented materials.	39	I always ask the instructor to repeat what s/he said.
27	I read test instruction during exams.	40	I review my answers to test questions during exams.
28	I am unable to answer correctly some comprehension questions after finishing reading the unit/chapter/ lesson.	41	I look carefully for answers when solving unit/chapter/ lesson questions.
29	If I do not get assistance, I will not finish my assignments.	42	I write down everything that the instructor writes on the board.
30	I respond to all required test questions during the exam.	43	I do my assignments hasty.
31	I ask for assistance during reading.	44	I always get distracted when academic requirements become demanding.
32	I encounter problems in sentence structure during writing.	45	I take a long time to respond to test questions.
33	I go through periods of lethargy during studying.	46	I get tired easily when doing my assignments.
34	I think thoroughly about test questions before responding.	47	When I want to memorize important information in the unit/chapter/ lesson, I read fast.

Continued: Appendix A

Item Number	Item
48	I summarize in my notebook major points in the unit/ chapter/lesson.
49	I finish the easy assignments first then the difficult ones.
50	I take a lot of leisure time while working on my assignments.
51	I answer during exams the easy questions first then the difficult ones.
52	I study in a quiet area.
53	I easily get tired when writing.
54	I have difficulties allocating the appropriate amount of time to each test question.
55	I suffer from a slow writing process.

Improving University Students' Science-Technology-Society-Environment Competencies

Yalçın Yalaki

Hacettepe University

Abstract

Science, Technology, Society, Environment (STSE) is an education movement that started and developed from 70s through early 2000s. Although this movement had lost emphasis in recent years, it is one of the most important educational reform attempts in science education history. Today, concepts like Socio Scientific Issues (SSI) or Science, Technology, Engineering, Mathematics (STEM) education are more prevalent. STSE reform aims making science more relevant for students while helping them attain scientific literacy. If applied well, this approach is very powerful in achieving this aim. This study explores the effect of an elective course on students' competencies in STSE education. Turned in assignments and presentations of 22 participants were the source of data, which was analyzed through content analysis. Results show that students were able to achieve high competency in certain areas of STSE education, while having difficulties in others. This study may have implications for university level STSE courses.

Key words: Science-technology-society-environment competencies, scientific literacy, teacher competences

Correspondence: yyalaki@hacettepe.edu.tr

Introduction

STSE education was developed as a reform effort in the 70s through 2000s mostly in certain Western countries (Aikenhead, 2003; Cheek, 1992; Solomon & Aikenhead, 1994; Yager, 1996). It was developed as a result of the inadequacy of teacher-centered, detached from real life, classroom-limited, textbook and memorization-based traditional science education and the increasing influence of science and technology on society and environment in recent decades (Mansour, 2009; Yager, 1996). The main aim of STSE education is to empower individuals by helping them achieve scientific literacy so that people can make informed decisions about science and technology related topics that influence society (Pedretti and Nazir, 2011; Mansour, 2009). The following quote from PISA 2015 Science Framework (OECD, 2013) summarizes the importance of scientific literacy very well.

Scientific literacy matters at both the national and international level as humanity faces major challenges in providing sufficient water and food, controlling diseases, generating sufficient energy and adapting to climate change (UNEP, 2012). Many of these issues arise, however, at the local level where individuals may be faced with decisions about practices that affect their own health and food supplies, the appropriate use of materials and new technologies, and decisions about energy use. Dealing with all of these challenges will require a major contribution from science and technology. Yet, as argued by the European Commission, the solutions to political and ethical dilemmas involving science and technology ‘cannot be the subject of informed debate unless young people possess certain scientific awareness’ (European Commission, 1995, p.28). (p. 3).

Yager (2007) argues that for STSE to be successful, teachers must act differently in the classroom. Student must be at the center of activities, data collection procedures, evidence collection to support ideas, and actions taken for solving problems. This paradigm shift has significant implications for teacher training and development. Lawrence et al (2001, p.17) summarize the differences between STSE and traditional orientations in science education in Table 1, which implies the paradigm shift that is necessary to apply STSE education successfully.

Table 1. *Difference between traditional and STSE orientations in science education*

Traditional Orientations	STSE Orientations
Teachers and textbooks are the main sources of knowledge	Students actively seek information to use
Science is abstract and has no relation to technology or daily life	Students see science as a way of dealing with problems in everyday life
Students concentrate on problems that are identified by the teacher or textbooks	Students identify problems about themselves or their community and take responsibility to solve those problems by using science
Minimal consideration given to human adaptive capacities	Human adaptation and alternative futures emphasized
Value-free interpretation of discipline bound problems	Value, ethical, and moral dimensions of problems and issues considered
Curriculum is textbook centered, inflexible; only scientific valid is considered (and from a limited view of content)	Curriculum is problem centered, flexible and culturally as well as scientifically valid
Information is in the context of the logic and structure of the discipline	Information is in the context of the student as a person in a cultural/social environment

Challenges that teachers face in STSE education are studied by many researchers (for ex. Bettencourt, Velho, and Almeida, 2011; Elmas, Öztürk, Irmak, and Cobern, 2014; Mansour, 2010; Steele, 2013; Yager, 2007). These studies usually highlight the changing roles of teachers and students in STSE education as well as issues ranging from pedagogy, time limitations, assessment, curriculum integration, and classroom management, all of which needs to be addressed in pre-service teacher education at university level.

This study was conceived with this need in mind and the effect of a university level course on pre-service teachers' competency in preparing STSE activities was evaluated. The one-semester elective STSE Education course provided the context for this study. Students were given the task of developing an STSE activity designed for application in schools at various levels. The model of STSE activities adopted in this course is summarized in Figure 1. A problem that influences the society which has scientific, technological, and environmental dimensions is the starting point in this model. Choosing location and time specific problems that are relevant for learners and suitable for their level is the aim in the first phase. Local media may be an important source of information for this purpose. After a relevant problem is determined, the second phase of the model starts (science and technology). In this phase, an inquiry activity aimed at understanding and solving the problem is designed by the teacher and students. This is followed by data based explanation and a possible solution to the problem is proposed by students. In the final phase of the model, return to society takes place by choosing an appropriate social action. This phase aims developing a sense of social responsibility of students (Dass, 1999; King, 2002).

Pedretti and Nazir (2011) provide a map of the STSE currents in their review of STSE literature. They suggest that there are six major currents in STSE education, first of which is named "application/design" by the authors. This STSE current focuses on solving problems through technology and inquiry. The model used in this course fits in this category of STSE applications.

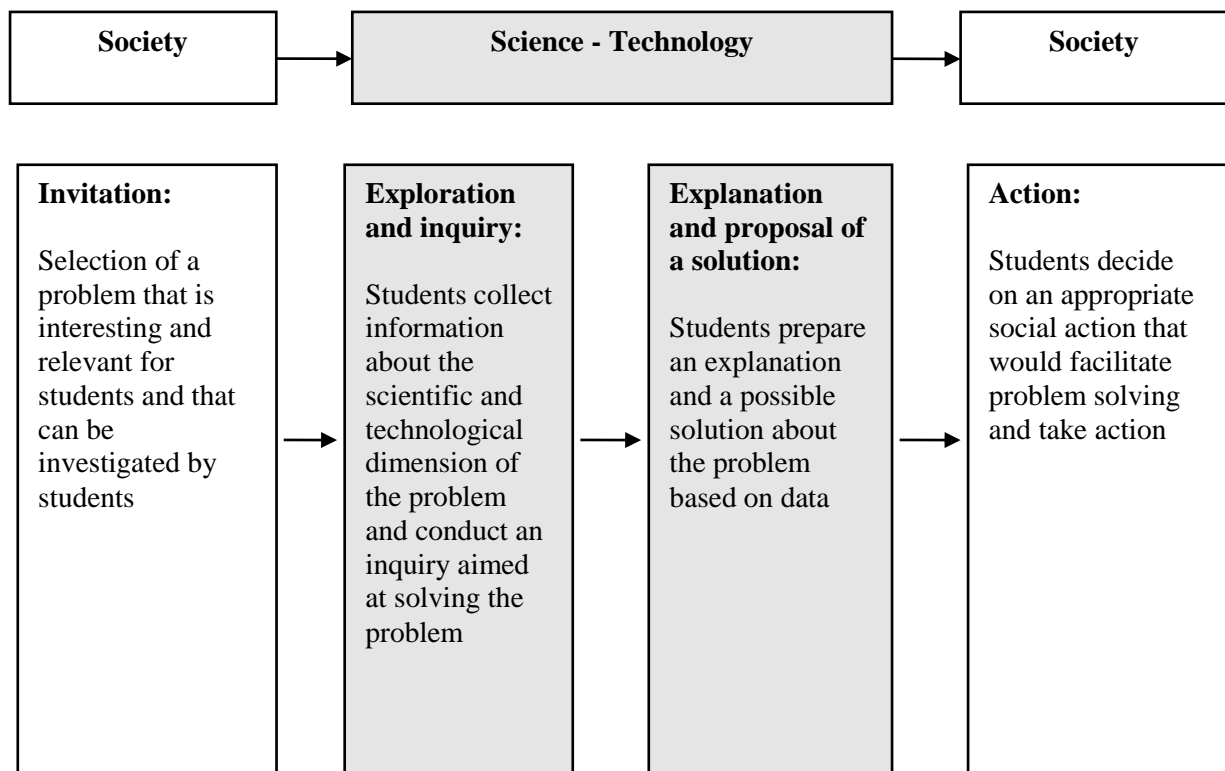


Figure 1: Model for developing STSE activities

Specifically, the research question explored in this study was: “How the competencies of university students about developing an STSE activity were affected after taking the one-semester-long elective STSE Education course?” The sub questions were: “Which competencies matured?” and “Which competencies need more emphasis?” The answers to these questions provided the data to be used for further development of the course, which also have implications for university level STSE courses.

Methods

The methodology of this study was action research, since the ultimate purpose of the study was to improve the practice of STSE teaching and learning at college level. Smith (2007) explains that a common type of action research is done to improve practice, especially in educational fields. Action research does not aim for generalization, since it is context dependent. Therefore convenience sampling is a common method for defining samples in action research, which was the case in this study as well.

22 undergraduate and graduate students were the participants of this study. They took an elective STSE Education course that was offered in the Primary Education Department of a major university in middle Turkey in the summer and fall semesters of 2014. The participants were enrolled in different departments, including primary education, science education, chemistry education, and Turkish Literature. Most of the participants (15) were pre-service teachers in their respective fields. During the course, history, features, types, and applications of STSE education were discussed with students. The main task of the students during the course was to develop an STSE activity that can be applied in a school setting. The following criteria were adopted for developing an STSE activity:

- 1- It should include a problem that influences society with science and technology dimensions.
- 2- It should be directly related to students’ lives.
- 3- It should be suitable for students’ levels (grades).
- 4- Science, technology, and society dimensions of the problem should be explained.
- 5- An inquiry activity that aims to solve the problem should be designed.

Students chose STSE issues at local, national, and global levels and developed activities about these issues during the class and turned in as a written document at the end of the semester and they also presented their work to the whole class. Some of the topics chosen by students for their assignments are listed in the following:

- a. Energy saving through solar heating
- b. Increasing salt production efficiency at the Salt Lake in Turkey
- c. Influence of Afsin – Elbistan thermal power plant on society and environment
- d. Increasing soil water retention for irrigation efficiency
- e. Substance abuse and its effects on society
- f. Influence of technology on how young people use language
- g. Modeling global warming
- h. Measuring heating effect of cell phones
- i. Effect of hydroelectric power plants on the environment
- j. Investigation of contagious diseases

Students’ assignments and presentations were the source of data for this study. Document analysis method was used to analyze the data. For this purpose, a rubric was developed for coding the

data, which is shown in Table 2. 14 codes were determined for data analysis based on common features in an “application/design” type of STSE education (Pedretti and Nazir, 2011). Each code was given points from 0 to 3 based on the four levels of development. After each assignment was analyzed based on the rubric, each code was marked and given points as shown in Table 2. For validity of the rubric, opinions of two experts were requested and revisions were made based on their suggestions. To ensure reliability, an independent coder analyzed a subset of the assignments and 87 % agreement was observed between the coders.

Table 2. Rubric used for content analysis of data

STSE Activity features	Points			
	3	2	1	0
1 Includes a suitable problem that has STSE dimensions	Problem has all STSE dimensions	Problem has most STSE dimensions	Problem has one relevant STSE dimension	Problem is not suitable for STSE
2 Directly related to students' lives	Problem is directly related to students	Problem is relevant for students' area	Problem is not directly relevant to students	Problem is not relevant for students
3 Suitable for students' levels	The issue is suitable for students' level	The issue is somewhat difficult for students	The issue is very difficult for students	The issue is not suitable for students' level
4 Explains the science dimension of the problem	Science dimension of the issue is well explained	Science dimension of the issue is fairly explained	Science dimension of the issue is poorly explained	Science dimension of the issue is not explained
5 Explains the technology dimension of the problem	Tech dimension of the issue is well explained	Tech dimension of the issue is fairly explained	Tech dimension of the issue is poorly explained	Tech dimension of the issue is not explained
6 Explains the social dimension of the problem	Social dimension of the issue is well explained	Social dimension of the issue is fairly explained	Social dimension of the issue is poorly explained	Social dimension of the issue is not explained
7 Explains the environment dimension of the problem	Envr. dimension of the issue is well explained	Envr. dimension of the issue is fairly explained	Envr. dimension of the issue is poorly explained	Envr. dimension of the issue is not explained
8 Links to curriculum is made	All relevant curriculum objective are mentioned	Some curriculum objective are mentioned	At least one curriculum objective is mentioned	No curriculum objective is mentioned
9 Interdisciplinary links are made	All interdisciplinary connections are made	Some interdisciplinary connections are made	One interdisciplinary connections is made	No interdisciplinary connections is made
1 0 Includes an inquiry activity that aims to solve the problem	Inquiry activity with all steps explained	Inquiry activity with most steps explained	Inquiry activity exist but not well explained	No inquiry activity is included
1 1 Has nature of science (NOS) and nature of inquiry connections	NOS connections are well made	Some NOS connections are made	At least one NOS connection is made	No NOS connection is made
1 2 Includes a design	Includes a well-defined product or process design	Includes a product or process design	Includes a poor-defined product or process design	No product or process design is included
1 3 Includes a social action proposal	Includes a well-defined social action plan	Includes a social action plan	Includes a poor-defined social action plan	No social action plan is included
1 4 Uses media news as a source of information	Mentions more than two media sources	Mentions at least two media sources	Mentions at least one media sources	No media sources are mentioned

Findings

The main findings of the study can be summarized in Figure 2. As shown in Figure 2, average points for each of the 14 codes were calculated and sorted from high to low in a column graphic. Competency in STSE activity features that have an average point of 2.00 and higher were considered

mature, competency in features that had points between 1.00 and 2.00 were considered intermediate, and competencies in features that had points below 1.00 were considered immature.

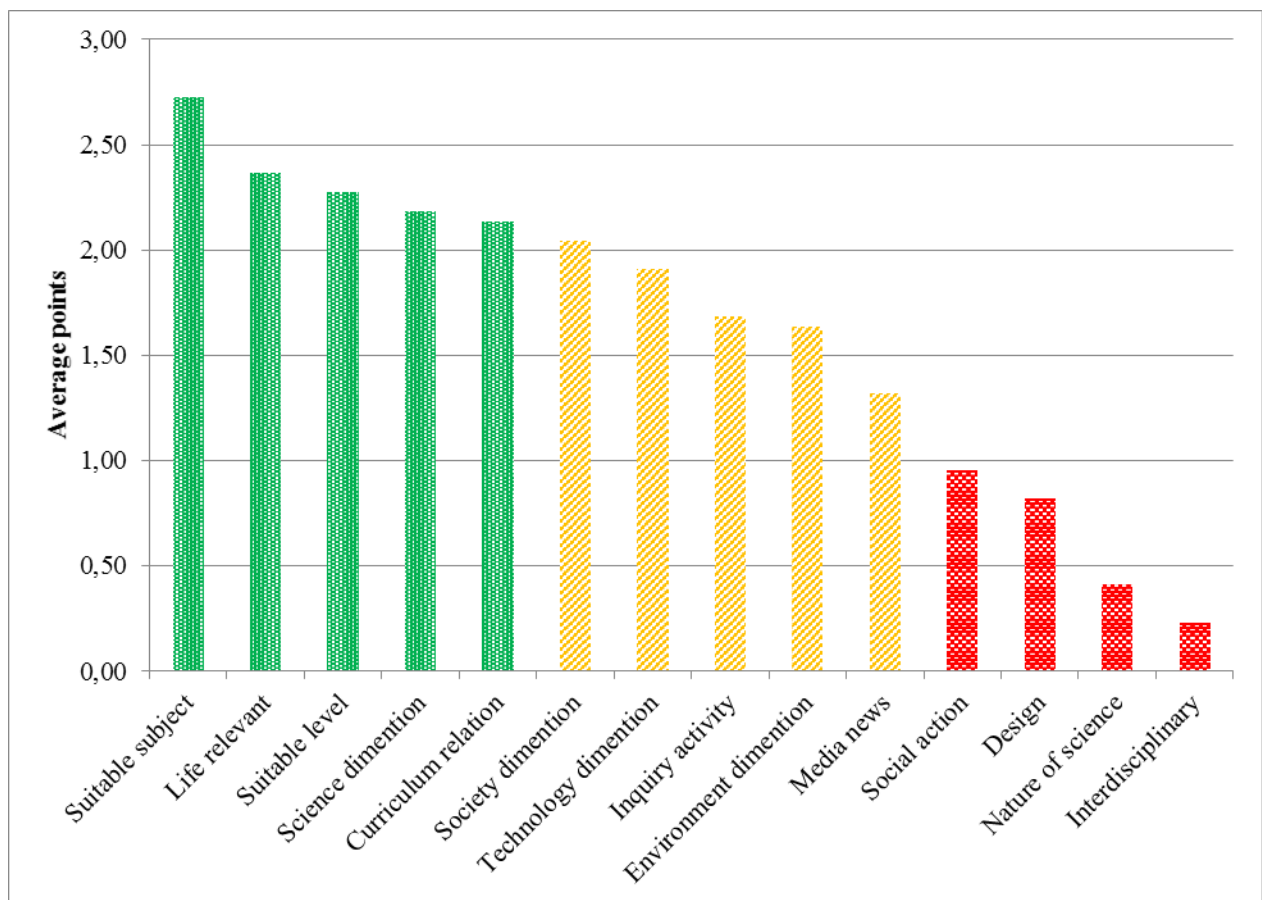


Figure 2: Findings from data analysis

As the findings indicate, students were able to demonstrate mature competencies in developing following features in an STSE activity:

- Includes a suitable problem that has STSE dimensions
- Directly related to students' lives
- Suitable for students' levels
- Explains the science dimension of the problem
- Links to curriculum is made

On the other hand, students were able to demonstrate intermediate competencies in developing following features in an STSE activity:

- Explains the social dimension of the problem
- Explains the technology dimension of the problem
- Includes an inquiry activity that aims to solve the problem
- Explains the environment dimension of the problem
- Uses media news as a source of information

Finally, students demonstrated immature competencies in developing following features in an STSE activity:

- Includes a social action proposal
- Includes a design
- Has NOS and nature of inquiry connections
- Interdisciplinary links are made

Conclusion

Findings show that competencies needed for developing some of the important features of an STSE activity are not matured during the STSE Education course. These include developing a social action proposal, making NOS and nature of inquiry connections, making interdisciplinary links, and including a design element. The data shows that more emphasis on these features is needed. The importance of these competencies in STSE education is emphasized in the literature. For example, Pedretti et al (2008) explain the challenges in teacher candidates' acceptance of science education that promotes social action. Akcay and Akcay (2015) report that STSE instruction improves students' NOS understanding more than traditional instruction. Frodeman, Klein, Mitcham, and Tuana (2007) emphasize the importance of interdisciplinary nature of STSE education with the example of the Hurricane Katrina disaster that hit New Orleans in 2005. A university level STSE education course should put further emphasis on these aspects, especially if designed for pre-service teachers. Inclusion of a design element in an STSE activity may not be as essential depending on the issue at hand.

Other features that needed improvement based on findings include explaining social, technological, and environmental dimensions of an STSE problem, designing an inquiry based activity for solving the chosen problem, and use of media news as a source of information. These findings provide further examples of possible features that need more emphasis in a university level STSE education course. The findings also show the complexity of content and design of such courses, which require a large array of pedagogical and content competencies on the part of the instructor. Developing students' competencies in STSE education is clearly a challenge that needs careful attention.

Applying STSE education requires significant investment in human and material resources at any level. Just including STSE objectives in curriculum does little in terms of real classroom applications, as has been the case in the 2005 and 2013 science curriculums in Turkey (MEB, 2005 and 2013; Yalaki, 2014). For affective and meaningful applications of STSE to take place, involvement of various stakeholders is needed in developing STSE modules or courses for teaching in all levels (Abualrob and Shah, 2012).

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The Mediator Effect of Loneliness between Perceived Social Competence and Cyber Bullying in Turkish Adolescents

Hakan Sariçam*

Education Faculty, Dumlupınar University, Turkey

Erkan Yaman*

Harington School of Communication and Media, University of Rhode Island,

İsmail Çelik*

Education Faculty, Ağrı Ibrahim Cecen University, Turkey

Abstract

The purpose of this research was to examine whether loneliness might play a mediating role between perceived social competence and cyberbullying in Turkish adolescents. The participants were 326 high school students who completed a questionnaire package that included the Cyberbullying Scale, the Perceived Social Competence Scale, and the UCLA Loneliness Scale. Relationships between loneliness, social competence and cyberbullying were tested using Pearson Product Moment Correlation Coefficient and predictions of each variable by the domains of the other were calculated with Linear Regression Analysis (LRA). Findings showed that perceived social competence, cyberbullying and self-efficacy were related to each other's. Hierarchical Regression Analysis results indicated that loneliness partially mediated the relationship between perceived social competence and school burnout.

Key words: Bullying, cyber bullying, social competence, loneliness

* Hakan SARIÇAM, PhD, is a psychological counseling specialist, Asst.Prof.Dr. and faculty member at the Faculty of Education, Dumlupınar University. His research interests are psychological well-being and social psychology.

* Erkan YAMAN, PhD, is an Educational Administration and Planning specialist, Assoc.Prof.Dr., and faculty member at the Faculty of Education, Sakarya University. His research interests are mobbing, bullying, and cyber bullying.

* İsmail ÇELİK, PhD, is a Curriculum and Instruction specialist, Asst.Prof.Dr. and faculty member at the Faculty of Education, Ağrı Ibrahim Çeçen University. His research interests are learning, metacognition, efficacy, and competence.

Correspondence: hakan.saricam@dpu.edu.tr

Introduction

Developing technology brings many dangers with it as it brings many innovations, beauty, and convenience. For example, aggressive behavior has gained a different size with the technological developments and has already gained itself to cyber-bullying case. Studies show that cyber bullying has become a common problem today as the traditional bullying. (Arıcak, 2009; Dilmaç, 2009; Erdur-Baker & Kavşut, 2007; Eroğlu & Peker, 2011, Yaman, Eroğlu, & Peker, 2011). When cyber bullying concept first put forward, authorities claimed that this is a type of traditional bullying, but in theoretical explanations made show that there are many differences as well as the similarities with traditional bullying (Wang, Iannotti, Luk, & Nansel, 2010; Dempsey, Sulkowski, Nichols, & Storch, 2009; Griezel, Craven, Yeung, & Finger, 2009). Arıcak (2011) defined cyber bullying as, "deliberate, repeated, and hostile behavior by a person or group of people using information and communication technologies in order to harm others. Arıcak (2009) in another definition sees cyber bullying as "whole injurious behaviors against an individual or group, or private or legal personalities in technical or relational manner".

Cyber bullying in terms of intimidation of people in target, teasing to them, making fun of them and lowering them show similarities with face-to-face bullying. But on the other hand, bullying made on the internet is likely to have worse effect. In one-to-one bullying a group of people can involve both with perpetrators and audiences, while bullying on the internet makes it possible to send obscene jokes, embarrassing photos or hate mails to a lot of people.

It is seen that individuals exposed to cyber bullying adversely affected in psychological development and academic achievement (Beran & Li, 2007; Hinduja & Patchin, 2007; Li, 2006; Ybarra, 2004). At the same time, increase in depression, anxiety and suicide problems was observed in people under the threat of cyber bullying (Yılmaz, 2010). Especially in adolescents cyber bullying behaviors from peers harm their individualistic, social, emotional and psychological development (Şahin, Aydın & Sarı, 2012). In individuals exposed to cyber bullying important issues are seen such as low self-respect, anti-social characteristics, school phobia, loneliness and absence from school (Campbell, 2005; Ybarra & Mitchell, 2004).

Loneliness

Loneliness which is a universal phenomenon has become a topic experts dwell on since it reached more intense civic and traumatic extent with the effect of change of socio-cultural structure and dynamics in period of progress of mankind up to now. Loneliness which is phenomenon predicts interdisciplinary approach, shows its importance not only scientific area but in philosophy and other art works by its use as theme and meaning attribution. Loneliness is to turn in upon human consciousness and emotions, not getting out of the cocoon of own as a result of severing ties with outside world.

Loneliness defined in different ways by different writers. Some see loneliness as an objective situation, some see it subjective situation and some see as an existential situation. Common side of all is that loneliness emotion is painful for people. Peplau and Perlman (1982) take loneliness in terms of interpersonal relations and define loneliness as an emotion which is a result from that current relations do not meet the expectation in this extent. According to this, individual can feel lonely while being together with many people without any objective reason. On the other side, Mijuskovic (1987) see that every person is lonely existentially and says that avoidance from loneliness is the primary source to motivate human behaviors.

Interaction and communication are adding meaning to human existence by hanging the wall of cocoon and integrating with other consciousness and emotions. Loneliness is the cognitive and sensory strain state which is painful for people, disappointing and destroying hopes of people as a result of interaction of individualistic and environmental factors. For example, risk factors' effects such as self-perception, self-awareness, lack of self-confidence as individualistic factors or death of relatives, divorce, immigration, social pressure, uncertainty and chaos as environmental factors, social interactions and lack of communication trigger each other and cause individual to get alienate and become lonely.

Social Competence

The state of being competent socially, social competence development efforts and researches of individuals in parallel, rapid changes, competition and collaborate work became important in today's world and became focus of interest. Lately, within the concept of prevention devoted to especially for children and young people, early intervention and positive youth development, social competence or social competence development studies are among the primary issues for social researchers (Anderson-Butcher, Stetler, & Midle, 2006; Sarıçam et al., 2013). Social skills are important competences in adolescents as much as in adults. Because, adolescence is a critical period for self-development adolescents enter into social relationships or shape the personality by establishing identification with one /s. Social competence covers a large part in this process. Social competence skills are essential perspective and skills that can be developed through education for living harmoniously together and which individuals should develop (Lewinsohn, Mischel, Chaplin, & Barton, 1980). The concept of social competence is defined as the ability that an individual can start and continue a relationship with others (Anderson-Butcher, Iachini, & Amorose, 2007; Gresham, Sugai, & Horner, 2001). According to another definition, social competence is individual's learned behaviors that cause to get positive feedback and help get away from negative feedback and accepted socially (Gresham & Elliot, 1993). From these definitions, it can be deduced that social competence is the potential ability to use social-communication skills. Social competence perception is consists of believing behaviors to be efficient and social competence behaviors. In development of social competence perception, individual should behave competently and get feedback from others in this direction (Sarıçam et al., 2013; Coleman, 2003).

The Present Study

Cyber bullying victimization in Turkey is recently experienced a lot (Ryan, Kariuki, & Yılmaz, 2011) like the entire world; especially female victims are subjected to be raped because of this and prefers to commit suicide as salvation. It is claimed that lonely individuals become more addicted to the internet (Ayas & Horzum, 2013), and another research claims that individuals without social competence became more lonely (Junttila, Vauras, Niemiand, & Laakkonen, 2012). In other words, as social competence perceived decreases, loneliness and cyber bullying can be related. Since the causes of cyber bullying are important for preventing, remediation and intervention researches, detecting the relationship between social competence and loneliness is expected to form the basis for this study. The aim of this study is to examine that whether loneliness has a mediator role in the relation between social competence perceived and cyber bullying. In direction of this aim, following hypothesis will be tested.

H1: Loneliness is positively associated with cyber bullying.

H2: Loneliness is negatively associated with perceived social competence.

H3: Perceived social competence is negatively associated with cyber bullying.

H4: Loneliness mediates the link between perceived social competence and cyber bullying.

Method

Participants

Working group of this study consists of 326 students in high school. 159 participants are male while 167 of them are females. Students' ages changes between 13 and 18 and the average age is 16.24.

Instruments

The Perceived Social Competence Scale: Anderson-Butcher, Iachini, and Amorose (2007) developed this scale which was adapted to Turkish (Sarıçam et al., 2013). Results confirmatory factor analyses demonstrated that 6 items yielded one factor as original form and that the one-dimensional model was well fit ($\chi^2=7.34$, $df=7$, $RMSEA=.010$, $CFI=1.00$, $RFI=0.99$, $IFI=1.00$, $AGFI=.98$, $GFI=.99$, $NFI=.99$ and $SRMR=.018$). Factor loadings ranged from .57 to .80. Cronbach Alfa internal consistency coefficient of the scale was found as .80. In the concurrent validity significant

relationships were found between perceived social competence, internal self-confidence ($r = .39$) and external self-confidence ($r = .39$). Corrected item-total correlations ranged from .52 to .66 and according to t-test results differences between each item's means of upper 27% and lower 27% points were significant. For the existent study, the coefficient alpha was .91.

The Cyberbullying Scale: This scale was built up by Arıcak, Kınay, and Tanrikulu (2012), and it has 24 items and one factor. Likert-type scale regarding the frequency with which the behavior of interest is exhibited where 1 = never, 2 = sometimes, 3 = often, and 4 = always. Higher scores, therefore, indicate greater cyberbullying (range=24–96). Kaiser-Meyer-Olkin (KMO) measure of sampling adequacy of .939 and a significant result on Bartlett's test of Sphericity $\chi^2 = 9197.54$ ($p < .05$). The amount of total variance explained was 50.58% and factor loadings ranged from .49 to .82. Cronbach alpha internal consistency coefficient was found as .95 for scale. Test-retest reliability coefficient was .70. Corrected item-total correlations ranged from .47 to .76. For the current research, the coefficient alpha was .86.

The UCLA Loneliness Scale: The UCLA Loneliness scale was developed by Russell et al. (1980) and was adapted to Turkish by Demir (1989). It is a self-report scale that assesses of loneliness in everyday life. The UCLA Loneliness scale has 10 positive and 10 negative items (total 20 items) ranging from 1 (never) to 4 (always). The total scores range from 20 to 80 and the higher score means that grater loneliness. Russell et al. reported that internal consistency of the scale measure was high (coefficient alpha of .94) in college student populations. Demir (1989) reported that Cronbach's alpha coefficient of the Turkish version of the UCLA Loneliness was .96 and a 5-week test-retest reliability was .94. For the present study, Cronbach's alpha internal consistency coefficient was .84.

Procedure

After discussed with a counselor in a public high school and got all required permissions to apply the study, application form is copied and applied with the counselor after explanation is made to the students in the school. Collected data transferred to computer and with SPSS 17 software package, Pearson Product Moment Correlation Analysis is applied in order to determine relationship between the variables and multiple regression analysis is used to determine mediator role of loneliness on the relationship between cyber bullying and perceived social competence.

For multiple regression analysis, cyber bullying was entered as dependent variable; loneliness, and perceived social competence were entered as independent variables. In order to test mediating role of loneliness on the relationships between cyberbullying and perceived social competence, hierarchical regression procedures were performed as recommended by Sarıçam (2015). According to author, four conditions must be met to show statistically the mediating effect of loneliness on the relation between cyberbullying and perceived social competence: (1) All variables must be associated with each other's, (2) perceived social competence must be predicted by loneliness (this result is also necessary for the Sobel z test), (3) cyberbullying must be predicted by perceived social competence, (4) When loneliness is controlled, there must be a statistically significant reduction in the effect of perceived social competence on cyberbullying. If the relation is reduced to non-significant levels, full mediation is demonstrated. Partial mediation occur when the correlation between perceived social competence and cyberbullying is reduced but still significant (Kenny, Korchmaros, & Bolger, 2003). These analyses were carried out using SPSS.

Results

Correlations between perceived social competence, loneliness, and cyberbullying

Table 1. *Descriptive Statistics, Cronbach's Alpha Coefficients, and Intercorrelations of the Variables*

Variables	1	2	3
1. Perceived social competence	1		
2. Loneliness	-.47**	1	
3. Cyberbullying	-.48**	.46**	1
Mean	14.82	58.15	64.91
Std.dev.	4.30	12.05	12.69
Alpha	.91	.86	.84

** Correlation is significant at the .01 level (2-tailed).

Table 1 show that there are significant correlations between perceived social competence, loneliness, and cyberbullying. Perceived social competence ($r=-.46$) and loneliness ($r=-.48$) related negatively to cyberbullying. Moreover, perceived social competence ($r=-.47$) was found negatively associated with loneliness.

Regression Analysis

Following the steps of the mediation procedure, second, it was verified that loneliness and cyberbullying (dependent variable) were positively related ($\beta= 0.46$, $t= 9.24$, $p < 0.001$). The results are shown in Table 2.

Table 2. *The regression results of the relationship between loneliness and cyberbullying*

Variables	Unstandardized Coefficients		Standardized Coefficients				
	B	SE _B	B	T	R	R ²	F
Loneliness	1.35	1.47	0.46	9.24*	.46	.21	85.46*

* $p < .001$

For the third and fourth of the mediation procedure, two stepwise multiple regression analysis was applied to assess which variables were the best predictors of cyberbullying. Table 3 showed the results of multiple regression analysis where the independent variables were loneliness and perceived social competence scores; and the dependent variable was cyberbullying. Perceived social competence entered the equation first, accounting for 23% of the variance in predicting cyberbullying. Loneliness entered on the second step accounting for an additional 6% of the variance. This means that loneliness and perceived social competence explain 29% of the variance in predicting cyberbullying. The standardized beta coefficients indicated the relative influence of the variables in the last model with loneliness and perceived social competence statistically significantly related to cyberbullying, and perceived social competence was strongest predictor of cyberbullying.

Table 3. *Mediation of loneliness in relation between perceived social competence and cyberbullying: hierarchical regression analysis with dependent variable cyberbullying*

Variables	Unstandardized Coefficients		Standardized Coefficients		R	R ²	F
	B	SE _B	B	t			
Step1							
Perceived social competence	-0.50	-0.051	-0.48	-9.74*	.48	.23	94.78*
Step2							
Perceived social competence	-0.35	-0.056	-0.33	-6.34*	.54	.29	68.02*
Loneliness	0.88	0.156	0.30	5.67*			

*p<.001

The results of the hierarchical regression analysis demonstrated that perceived social competence was negatively associated with cyberbullying ($\beta = -0.48$, $t = -9.74$, $p = 0.000$). However, when perceived social competence and loneliness were taken together in the regression analysis, the significance of the relationship between perceived social competence and cyberbullying ($\beta = -0.33$, $t = -6.34$, $p = 0.000$) decreased, yet the relationship between social competence and cyberbullying was significant. According to Kenny et al. (2003) and Sariçam (2015), this result indicated a partial mediation. Therefore, it can be said that loneliness partially explains the relationship between social competence and cyberbullying.

The present model was tested using the Sobel z test. The purpose of this test is to verify whether a mediator carries the influence of an interdependent variable to a dependent variable. The Sobel z test is characterized as being a restrictive test, and as such, assures that the verified results are not derived from collinearity issues. In the current study, the test value verified was $Z = 4.22638987$; $p = 0.000$.

Discussion

The general purpose of the current study was to examine relationships between perceived social competence, cyberbullying and loneliness in Turkish adolescents. Firstly, a negative relationship is found between loneliness and perceived social competence. In other words, as social competence increases, loneliness level decreases. According to Junttila, Laakkonen, Niemi, and Ranta (2010), individuals with low social competence refrain from relationships with others they have social anxiety and social fear; therefore remain alone. Similar to this, Most, Ingber, and Heled-Ariam (2012) found relationship between social competence and loneliness. These studies show similarities with our study.

In the second finding of the study, there is a positive relationship between loneliness and cyber bullying. According to Ayas and Horzum (2013) individuals with low self-respect have high level of loneliness. Lonely individuals spend more time on the internet and can make more cyber bullying (Ayas & Horzum, 2013; Şahin, 2012). These findings support study finding.

Thirdly, there is a negative relationship between perceived social competence and cyber bullying. In other words, as social competence is increased, cyber bullying decreases. Malecki and Demary (2002) found in a research they have done that adolescents have problems such as communication, aggression and alienation from the society when level of acceptance by their friends

decreases. In another research, one fourth of the students who face with bullying in school, make cyber bullying by using social network etc. (Li, 2005). Also, in the research carried out by Junttila, Voeten, Kaukiainen, & Vauras (2006) relationship is found between social competence and anti-social behaviors. From these results, individuals who have low level of social competence or who face with bullying show aggressive behaviors or become lonely (Hinduja & Patchin, 2009). According to the result of this research individuals with low social competence, apply to loneliness and to cyber bullying as an alternative. Campfield (2008) determined that 57% of the victims face with bullying in school makes cyber bullying via mobile phone or the internet. In other words, individuals who have low level of social relationships tend to bullying behaviors on virtual platform.

As a result, there are important relationships between loneliness, cyber bullying and perceived social competence. If applications are used to increase individuals' social competence level, level of loneliness will decrease; so the level of cyber bullying levels will fall, too. In the research Erođlu and Peker (2011) did social support perceived from the family and friends decreases cyber victimization. These results show similarity with this proposal.

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The Relationship Between Preservice Science Teachers' Attitude Toward Astronomy and Their Understanding of Basic Astronomy Concepts

Behzat Bektasli*

Hacettepe University

Abstract

Turkish preservice science teachers have been taking a two-credit astronomy class during the last semester of their undergraduate program since 2010. The current study aims to investigate the relationship between preservice science teachers' astronomy misconceptions and their attitudes toward astronomy. Preservice science teachers were given an Astronomy Attitude Test and a conceptual test at the beginning of their astronomy course. Three students from each of three attitude levels (low, medium, and high) were selected for interviews and asked to explain their conceptual test responses in depth. Generally, low-attitude students had more misconceptions and gave non-scientific, low-level explanations, whereas middle- and high-attitude students gave more scientific explanations. The results suggest that students develop negative attitudes about a subject in which they lack knowledge.

Key words: astronomy attitude levels, basic astronomy concepts, preservice science teachers

* Dr. Bektasli earned a Ph.D. from The Ohio State University, College of Education, Department of Science Education. He is an Assistant Professor at Hacettepe University, College of Education, Department of Science Education. His research focuses on astronomy and physics education.

Correspondence: behzatbektasli@gmail.com

Introduction

Preservice science teachers in Turkey do not take an astronomy course until the last semester of their undergraduate studies and generally have limited backgrounds on the topic. Therefore, they tend to enter this course with poor astronomy knowledge and various misconceptions (Bektasli, 2013b). Science education students who graduated in 2010 were the first to take an astronomy course as preservice science teachers. Most of their existing astronomy concepts are based on other science courses (such as physics), the media, or their amateur observations of the sky. Therefore, it is not surprising that they should hold some misconceptions related to astronomy.

Astronomy misconceptions have been reported in numerous studies (Bisard, Aron, Francek, & Nelson, 1994; Brunsell & Marcks, 2005; Trumper, 2000; Zeilik, Schau, & Mattern, 1998). Often they are so deeply rooted as to be difficult to change. Usually, students can overcome misconceptions as they learn further. However, if they still hold misconceptions when they become science teachers, it is a much more serious problem. Teachers will most probably transfer their misconceptions to their students, and misconceptions received from a teacher are more likely to be permanent. Such misconceptions may affect future students' attitudes toward science in a negative way and make it more difficult for them to understand astronomy.

Bektasli (2014) reported that science teachers have serious misconceptions related to astronomy. Teachers may feel uncomfortable teaching a topic that they do not fully understand themselves. Their inadequate astronomy content knowledge may result in some science teachers avoiding astronomy topics as much as possible, not wanting to convey inaccurate information to their students. Teaching astronomy with poor content knowledge will make teachers uncomfortable and diminish their self-efficacy, causing both teachers and their students to develop negative attitudes toward astronomy.

It is very interesting to have astronomy topics in the science education program at the end of the year at all grade levels. Teaching astronomy topics at the end of the year may, however, reduce the quality of instruction. Both teachers' and students' performance tends to decrease toward the end of the school year. In addition, science teachers usually strive to cover all the topics they are expected to teach, but if the pace of instruction is lowered by teacher illness, unexpected holidays, or some other cause, then there may not be enough time to teach astronomy. Therefore, it is crucial to plan the teaching of astronomy topics. To address this problem, it may be useful to change the order of topics and cover astronomy topics earlier in the year at some grade levels.

Students' Attitudes toward Science

Freedman (1997) observed that student achievement in science is related to positive attitudes toward science. It is important to develop positive attitudes toward science among young students, because attitudes are hard to change once they have become established, even at the middle-school level (Ajzen & Fishbern, 1980; Gibson & Chase, 2002). When students develop positive attitudes toward a subject, they are more inclined to enjoy it and continue learning it (Pell & Jarvis, 2001). However, students usually develop negative attitudes toward science (George, 2000; Reid, 2012). Durrani (1998) reported that the number of students who prefer to take science courses decreases as they become older, possibly reflecting the impact of negative attitudes toward science.

Zeilik et al. (1997) noted that students generally develop negative attitudes regarding a course that they have never experienced before. Astronomy is a new course for preservice science teachers in Turkey. Therefore, it is important to select appropriate teaching methods and tools to help these students develop positive attitudes about the course. Bektasli (2013a) reported that students usually develop positive attitudes toward astronomy as they begin to learn the topic, dispel their misconceptions, gain an accurate conceptual understanding, and support this learning with observations.

Since attitudes depend on many variables, research on attitudes toward science has yielded varying results. George (2000) and Piburn and Baker (1993) reported that students' attitudes toward science deteriorate as students become older, but Reid and Skryabina (2002) did not find such a deterioration. Most studies have focused on only one or two of the variables that can affect attitudes (Gardner, 1995). Variables examined in previous research have included the attitude instrument itself (Reid, 2006), friends (George, 2000; Keeves, 1975; Osborne, Simon, & Collins, 2003), teachers and their instructional techniques (George, 2000; Osborne et al., 2003; Reid & Skryabina, 2002), and parents (George, 2000; Keeves, 1975; Osborne et al., 2003; Reid & Skryabina, 2002).

Bennett (2001) pointed out that, instead of getting lost in quantitative data on student performance, it can be better to deal with students' attitudes in depth so as to gain a better understanding of what the data signify. The present study supports Bennett's idea by interviewing nine students with various attitudes toward astronomy to determine if these different attitudes are associated with different understandings of astronomy concepts.

Zeilik, Schau, and Mattern (1998) noted that sometimes it is very hard for students to overcome their misconceptions because of how deeply rooted those erroneous understandings have become. Thus, it is also important to identify how deeply students' astronomy misconceptions are rooted and what has caused those misconceptions, which can in turn affect students' attitudes toward astronomy. In-depth interviews with students should provide useful information to answer these questions.

Methodology

Participants

The research sample included 78 preservice science teachers in their fourth year of undergraduate study. Nine students with different attitude levels were randomly selected for interviews. None of the participants had previously taken an astronomy course, although they had taken some physics courses in high school and in the first two years of their undergraduate program.

Instruments

Two tests were administered at the beginning of the semester. First, students were given the Survey of Attitudes toward Astronomy (Zeilik, Schau, & Mattern, 1999). The original survey had 34 items, but the version adapted to Turkish by Bektasli (2013b) contains 29 items. Second, students were given 10 multiple-choice astronomy questions derived from the Astronomy Concept Test (AstroCoT) (Bektasli, 2013b). The questions were discussed with experts and some corrections were made before their administration. At the end of each question, students were requested to indicate whether they were certain of their answers.

In the second part of the study, nine students, three from each of three attitude levels (low, medium, and high), were selected randomly for interviews based on the results of the attitude survey. Each interview lasted about 30 minutes. Students were asked to explain their answers to the astronomy questions so as to give a clearer indication of the underlying factors affecting their responses.

Data Analysis

The students' responses on the 29 attitude survey items were coded numerically as follows: *strongly agree* = 5, *agree* = 4, *neither agree nor disagree* = 3, *disagree* = 2, and *strongly disagree* = 1. Possible scores thus ranged from 29 to 145. For negative items, students' responses were reverse coded before reliability analysis. Cronbach's alpha for the 29 items as revised by Bektasli (2013a) was 0.89. Attitude scores ranged between 86 and 141, with an average of 116. The score range considered as low for 86 to 105, medium for 106 to 124 and high for 125 to 141.

Each correct response to an astronomy question was coded as 1 and each incorrect response was coded as 0, except that if a participant gave a correct answer but said that he or she was not sure of the response, it was coded as 0 instead of 1. This approach was used to reduce the risk that chance factors (i.e., guessing correct answers) could skew the data.

Results

In this section, students' responses to the conceptual questions are discussed. Students' misunderstandings of basic astronomy concepts are presented and analyzed in relation to astronomy attitude levels. Table 1 presents the percentage of correct responses for each question.

Table 1. *Percentage of Correct Answers on Astronomy Questions*

Question	Related Astronomy Concepts	Percentage of Correct Answers
1	Meteor shower; distance and dimness	74
2	Source of light	66
3	Location of the Sun	26
4	Seasons	78
5	Planetary motion	51
6	Size of the Sun	27
7	Earth's rotation; size of planets and stars	31
8	Constellations	9
9	Sun-to-Earth distance in different seasons	13
10	Shape of stars	16

Meteor Showers

Approximately 74% of participants answered this question correctly. When interviewed, students with low attitude levels tended to give non-scientific responses, whereas medium- and high-attitude students provided explanations of what they had learned from previous classes, scientific magazines, or other forms of media, such as documentaries. All three low-level students believed that meteor showers occur when a star changes position and dies:

Stars change position by slipping. They are born, live, and they die. (Student 50)

Stars go somewhere else when they slip. We know that stars die when they slip. (Student 66)

There seem to be two possible reasons for students' responses here. First, meteor shower is *yıldız kayması* in Turkish, which can be translated as a *slipping star*. Therefore, the language itself may direct students to this misunderstanding. The second reason might be related to observations. It is common in Turkey to say, "Hey, look! A star has just slipped; make a wish!" People are not aware that they are really observing not a star but a meteor.

Relationship between Distance and Dimness

Similarly, low-attitude students gave non-scientific explanations for the relationship between the distance and dimness of stars. They believed that the amount of light emitted by a star is more important than the distance. One student explained, "*I don't think that seeing a star bright is related to distance, because all of them are quite far from us. It is more related to the brightness of the star itself*" (Student 50).

On the other hand, medium- and high-attitude students tended to give more scientific

explanations, but still based on their observations. They stated that when a source of light moves farther away from us, it becomes dimmer. A high-attitude student said, "*Farther stars look dimmer because light comes dimmer from a farther point. We see a light bulb dimmer from a farther point*" (Student 2).

Are Planets a Source of Light?

Medium- and high-attitude students clearly stated that planets are not a source of light but simply reflect sunlight. On the other hand, low-attitude students stated in their explanations that the Moon is also a planet and reflects the sunlight. Even though this answer is partially true, they believed that the Moon is a planet. Following is one excerpt from an interview:

Student 7: *Planets are not a source of light; they reflect the sunlight. For example, the moon reflects the sunlight.*

Researcher: *Is Moon a planet?*

Student 7: *Yes, the Moon is a planet.*

Here is another exchange with a low-attitude student:

Researcher: *Why do you think that planets are not a source of light?*

Student 7: *Because the Moon is also a planet, but it is not a source of light; it reflects the sunlight.*

The Location of the Sun

This is one of the questions with which students had the greatest difficulty. Only 26% gave the correct answer. One low-attitude student said, "*The Sun is at the center of the universe because it is the biggest star*" (Student 50). Middle-attitude students attempted to give a more scientific response. One of them still did not have adequate knowledge to explain the answer, stating, "*I think the solar system is not at the center of the Milky Way because the universe is expanding*" (Student 76). Another middle-attitude student remembered the answer but could not give an explanation: "*Our Solar System is not at the center of the Milky Way; I have learned that before*" (Student 21). High-attitude students also stated that the Sun is at the center of the Milky Way, but were not sure of their responses.

What Causes Seasons?

Most students answered this question correctly, stating that the phenomenon of different seasons is not related to the position of the Moon. A low-attitude student said, "*The position of the Moon does not affect the seasons because the Moon is not a source of light*" (Student 7). One high-attitude student believed that the position of the Moon did affect the seasons. That student stated, "*The axial tilt of Earth is constant so it should not affect seasons. ... The position of the Moon affects seasons but I do not know how*" (Student 4).

Kepler's Laws of Planetary Motion

Low-attitude students thought that Earth revolves around the sun at a constant speed. Two middle-attitude students stated that the speed is not constant and gave an explanation by reference to Kepler's laws; the other middle-attitude student was not sure. High-attitude students were not sure of their answers but thought that the speed may not be constant. One high-level student said, "*Planets do not revolve at constant distances from the Sun; therefore their speed will not remain constant*" (Student 4).

Size of the Sun

Low-attitude students thought that the size of the sun would remain constant. Medium-attitude students said that if the size of the sun were to change, Earth would be affected. Another medium-attitude student offered a more scientific explanation: *“The energy of the sun will be exhausted because of the chemical reactions that occur in the sun; therefore the amount of substance in the sun will decrease and its energy will not be infinite”* (Student 37).

The third medium-attitude student also thought that the size of the sun will not remain constant because solar explosions cause pieces to become separated from it. On the other hand, a high-attitude student stated that the size of the sun will change over time because scientists given such an explanation. Also, that student said that since stars are born, live, and die, then the size of the sun will change over time. Another high-attitude student believed that solar explosions will not affect the size of the sun in the short run, but that its size may change in the long run. Finally, the third high-attitude student said, *“According to my idea, the sun is a star. Stars are born, live, and die; however, the sun does not die. I am in a conflict now”* (Student 4).

In Which Direction Does Earth Rotate?

Students were asked if the following statement is true or false: *“When you look over the North Pole, the earth rotates clockwise.”* Students of all three attitude levels tried to answer the question by saying that Earth rotates either from east to west or from west to east. In the interviews, students were given the New Year event as an example to help them answer the question. They all know from media reports that countries in the Far East, such as Japan or China, are the first in the world to celebrate the New Year, followed by the Middle East, then Europe, and finally the Americas. When they reflected on this event, they were able to realize that Earth rotates counterclockwise as viewed from above the North Pole.

Are Planets Bigger Than Stars?

All levels of students thought that some planets would be bigger than stars. Some students gave that answer based on probability, indicating that since the universe is so big, there should therefore be some planets bigger than Earth. Other students were affected by pictures in textbooks, magazines, or other media. They stated that we usually see stars as dots and planets as big in such pictures. This is an interesting and crucial observation, because in some textbooks the sizes of the planets and the sun in our solar system are not drawn precisely.

Do Stars That Form Constellations Have Common Features?

Most of the students at different attitude levels believed that stars that form a constellation have common characteristics. Only one medium-attitude student said that they do not have common features, adding, *“I think we name and categorize them based on their shapes”* (Student 21). All nine students believed that constellations are not observed at the same point in the sky every night. Their main argument for that response was Earth’s rotation.

In Which Season Is the Sun Closest to Earth?

Students answered this question based on their experiences. Since all students live in the northern hemisphere, they believed that the sun is closest to Earth in summer than in winter. However, when confronted with conflicting information, they began to think further and examine their responses. The following conversation involved a high-attitude student:

Student 4: *I answered that question based on temperature. It is very hot in July and very cold in January.*

Researcher: *When it is summer here, it is winter in the southern hemisphere. Then, when we ask them the same question, will the answer change?*

Student 4: *Yes, the answer will change according to them.*

Researcher: *If you were living there, what would be your answer then?*

Student 4: *Then my answer would be that the sun is closest in January and farthest in July.*

Researcher: *Then there is a conflict here, right?*

Student 4: *Yes, I know myself, I knew that I was thinking wrong.*

What Shape are Stars?

All three different levels of students agreed that the shape of a star is not a pentagon, but they could not state a general shape for stars. Here is an example from a low-attitude student:

Student 50: *Stars are not pentagons; we perceive them as pentagons, but they are not.*

Researcher: *Then what are their shapes?*

Student 50: *They can be round like the sun or may be other shape, but I did not think of them as exact pentagons. For example, they can be in the shape of a snowflake.*

Conclusions and Implications

As Ajzen and Fishbern (1980) and Gibson and Chase (2002) reported, it is difficult to change attitudes. Therefore, it seems important to search for any relationship between students' attitudes toward astronomy and their conceptual understanding of basic astronomy concepts. Doing so may help to uncover reasons for the development of negative attitudes toward astronomy. Student achievement in science seems to be one of these reasons. Kind, Jones, and Barmby (2007) noted that developing positive attitudes toward science plays a significant role in student success; if students develop positive attitudes toward science, they will have a better chance of succeeding in science. The results of the current study support this idea. Medium- and high-attitude students showed a better understanding of astronomy than low-attitude students. It appears that students develop negative attitudes about a subject in which they hold various misconceptions.

In general, astronomy misconceptions arise due to a lack of good astronomy knowledge. The participants in this study stated that their astronomy knowledge was based on amateur observations, media (e.g., documentaries or magazines), or prior knowledge from various physics courses. None of the participants had taken any astronomy course prior to the present study. Even though these participants were relatively novice astronomy learners, some of them had developed positive attitudes toward astronomy.

Low-attitude students tended to give more non-scientific explanations, usually based on their observations or misconceptions. Medium- and high-attitude students were more likely to offer scientific explanations or to explain their answers by reference to laws of physics, such as Kepler's Law of Planetary Motion. In contrast, low-attitude students did not mention Kepler.

Students at all three attitude levels gave incorrect explanations about meteor showers, describing them as involving the displacement and death of a star. Two important points arise here, as noted earlier. First, this explanation is most probably based on students' observations. Meteor showers appear in the sky for a short time, during which the meteor changes position and then suddenly

disappears. Second, the students' misunderstanding of meteor showers as the motion of a star derives from the Turkish language itself, since the term for a meteor shower in Turkish literally means *slipping star*. A similar misunderstanding exists with regard to constellations. Students at all attitude levels believed that stars that form constellations have common features. Again, the Turkish word for constellation is *takım yıldızı* or "stars team". It seems that it would be helpful to rename some astronomy concepts in Turkish.

Another finding of this study concerns textbooks and other printed media. In many textbooks, the sizes of planets and stars are not shown in their correct relationship. In the present study, participants said that in some pictures they saw planets bigger than stars. In some textbooks, the sun and other planets are shown together in pictures of the solar system. It does not seem realistic to show Earth and the sun in the same picture, because the sun is so big that approximately one million Earths could fit into it. Similarly, none of the students were able to state a general shape for stars. They knew that stars are not pentagons, but in daily life a star is usually shown as a pentagon, such as on many national flags.

Students' real-life experiences and observations seem to be very significant in forming and shaping their conceptual understanding and attitudes. Students at all attitude levels thought that the sun is closer to Earth in summer. The main reason for this seems to be that they live in the northern hemisphere. They experience summer as hot and winter as cold, so they assume that the Sun must be closer in summer; they are not aware that the greater heat is related to the angle of sunlight beams reaching Earth. Interestingly, none of the students interviewed gave any explanation related to the angle of sunlight beams.

Another real-life experience that affected conceptual understandings of astronomy was related to observation of the Moon. Low-attitude students thought that planets were a source of light and tried to explain this by reference to the Moon, stating that the Moon is a planet. Obviously, their explanation is based on their observation of the Moon. In contrast, medium- and high-attitude students were able to explain that the planets reflect sunlight. None of these students mentioned the Moon in their responses.

It is crucial for preservice science teachers to develop positive attitudes toward science. If teachers have positive attitudes toward science, they will probably display that orientation to their students. Developing positive attitudes is related to conceptual understanding of scientific concepts. Therefore, science teachers who have adequate content knowledge of astronomy will most probably develop positive attitudes toward astronomy. They will then be in a better position to help their students develop similarly positive attitudes toward astronomy, beginning at an early age. This is essential because attitudes are hard to change. If science teachers help young students to develop positive attitudes toward astronomy, those students will probably like science more. On the other hand, if youngsters develop negative attitudes toward science, they will probably not like science and will probably prefer not to study science in the future.

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Are Review Skills and Academic Writing Skills Related? An Exploratory Analysis via Multi Source Feedback Tools

Salim Razi*

Canakkale Onsekiz Mart University

Abstract

Because students learn from each other as well as lecturers, it is important to create opportunities for collaboration in writing classes. Teachers now benefit from access to plagiarism detectors that can also provide feedback. This exploratory study considers the role of four review types, open and anonymous, involving the students themselves, peer and tutor reviewing, and anonymous digital review by means of plagiarism detectors. Eighty-seven freshmen from Canakkale Onsekiz Mart University, Turkey, participated. Throughout the term, feedback was provided by four sources: the tutor, peers, software, and by students themselves. At the end of the term, written assignments were self and peer reviewed, and graded by the course lecturer. Results indicated that higher-scoring students could manage both self and peer review tasks more effectively. The study suggests that academic writing and reviewing skills are related, and that integrating review skills into evaluation procedures may result in a more reliable assessment.

Key words: academic writing, anonymous peer review, digital feedback, digital technology, plagiarism detectors, self review

* Salim Razi is an assistant professor at the English Language Teaching Department of Canakkale Onsekiz Mart University, Turkey where he trains EFL teachers and offer graduate courses. He has published on nativization, teaching and assessing reading, metacognitive reading strategies, teaching and assessing academic writing, detecting and avoiding plagiarism, listening activities, teaching culture and intercultural communication, and research culture. He was awarded with Turnitin Global Innovation Awards in 2015.

Correspondence: salimrazi@gmail.com

Introduction

Peer review is receiving help to accomplish a writing task and benefits from the social constructionist theory of learning (Hanjani & Li, 2014). A growing body of research affirms that peer review should be extended to language learning extensively. Although it is difficult to measure its impact (Kleijn, Mainhard, Meijer, Brekelmans & Pilot, 2013), peer review is usually considered beneficial (e.g., Hu, 2005; Hu & Lam, 2010; Zhao, 2014). As students may learn from each other, especially in societies with a collaborative-working culture, as well as their teachers, it is useful to create opportunities for interaction with peers. Such interaction and collaboration is described by Vygotsky's (1978) *Zone of Proximal Development* (ZPD) as a powerful way of developing skills through the process of *scaffolding*, as termed by Weissberg (2006). If students can manage peer review tasks successfully, this may improve their own writing skills.

Peers may draw a student author's attention to problematic aspects of a paper that had been overlooked (Ruecker, 2010). The reliability of peer review is considered by some researchers questionable (Aghaee & Hansson, 2013), and several studies (e.g., Paulus, 1999; Rinehart & Chen, 2012; Rollinson, 2005; Ruecker, 2010; Saito & Fujita, 2004) warn against the potential risks, such as students with limited abilities misleading each other due to their own deficiencies; leading to lack of trust in their peers' feedback. Aghaee and Hansson conclude that peer evaluation is a valuable experience both for authors and reviewers; however, the benefit for the reviewer may be greater than for the author (Lu & Law, 2012). Storch (2002) highlights that subsequent applications of ZPD enable both asymmetrical and symmetrical considerations; whereas the former signals feedback from an expert to a novice learner and the latter deals with feedback between learners of equal ability (Hanjani & Li, 2014). Bearing all this in mind, integrating the review element into writing classes would appear to be beneficial, especially for the reviewer.

Peer Feedback and Turnitin

Researchers have been engaged in an on-going debate regarding the impact of digital technology in the classroom. However, if we consider that the benefits of digital technology outweigh possible disadvantages, writing lecturers should be encouraged to make use of them.

Two reasons for incorporating digital technology into writing classes may include (a) checking student papers for plagiarism, and (b) providing timely and more effective feedback. To achieve this, students submit their assignments online and create virtual classes using plagiarism detectors and online graders. This study considers the impact of several feedback tools in terms of developing higher quality academic writing.

Benefiting from peer review is considered so influential that digital technology aims to provide opportunities for its practical administration in the classroom. "Turnitin" introduces itself as a pioneering brand in evaluating and improving student learning. Although its original aim was simply detecting plagiarism, recently Turnitin has gone further and focused on improving its peer review feature. Thus, Turnitin's service provides two additional features: *GradeMark*, for online marking, and *PeerMark* for peer reviews. These facilities, in addition to reducing instructors' workloads, increase opportunities for students to improve their writing. However, since this is a fairly new phenomenon, researchers have not yet reached a consensus on the superiority of online feedback over traditional modes (Elwood & Bode, 2014).

PeerMark offers lecturers several opportunities; it may distribute papers automatically, remove student identification for anonymous peer review, and provide a set of review tools and metrics to students themselves. This would not be possible without the help of digital technology. Managing the peer review process online also eliminates the social constraint of face-to-face feedback (Ho & Savignon, 2007). All in all, the various options provided by Turnitin in administering the peer review process should, in theory, contribute to more effective feedback.

Although the relevant literature reports the impact of open peer review, it has so far lacked detailed descriptions of the impact of anonymous peer review on undergraduate writing skills. However, encouraging students to take part in anonymous peer review helps them better understand the characteristics of academic writing (Robinson, 2002). The basic assumption in the present study, of retaining anonymity in the peer review process is underpinned by Liou and Peng's (2009) study where students were reluctant to highlight their friends' errors. In this respect, anonymity may help in exchanging more effective feedback and, in turn, may contribute to better academic writing skills. Furthermore, anonymity is accepted practice in refereed journals, as academics are well aware.

Research Studies

Although impartiality cannot be vouched for, Turnitin (2010) provided a scientific basis for their services by reviewing 21 independent studies of pedagogy and practice in writing in which, overall, teachers were encouraged to integrate writing processes, benefit from peer review, and apply technology to enhance writing among other factors. Recently, Turnitin (2014, p. 9) released another report providing evidence for their educational gains "facilitating electronic submission and helping instructors reduce the amount of time spent grading, while increasing the quality of feedback they give and the level of student engagement". These reports aim to communicate that when students are provided with feedback about their writing, and have access to plagiarism detectors, they are able to develop better writing skills.

Although research on peer review highlights its contribution to students' writing development, Rollinson (2005) cautions that teachers need to consider different student groups carefully and give precise instructions about the peer review task. The principles of classroom-based assessment (CBA) provide guidelines for avoiding problems. Ultimately, a combination of self, peer, and tutor review is needed "to help students make informed decisions about how to revise their early drafts and how to reflect upon the strengths and weaknesses of their writing development" (Lam, 2013, p. 446).

In spite of the body of research focusing on plagiarism and peer review, there is little research considering the impact of anonymity in peer review. The scarcity of studies including the use of digital feedback provided the impetus for the present research. One study conducted in a science class by Robinson (2002, p. 190) investigated the impact of multi-reviewer anonymous peer review and indicated the problems of managing such a process without digital technology by concluding that "[a]nonymous peer review is not a panacea for eliminating subjectivity in marking or for increasing the amount of feedback students receive". By going one step further, the present study reports the implementation of anonymous peer review, this time in an English for academic purposes (EAP) setting, and incorporating reports from plagiarism detectors. The relation of review skills with academic writing is considered. The study introduces a new 4-source approach for scoring student papers by comparing lecturer's scores with those of students, either their own or peers, plus digital feedback.

Methodology

This study is underpinned by the assumption that CBA—a combination of teacher-mediated, self and peer feedback—is beneficial for improving writing. In addition to these common types of feedback, it introduces a new type of feedback provided by plagiarism detectors, namely, *digital feedback*. Relevant to these discussions, the impact of proficiency in writing an academic paper on the quality of reviewing was the main concern of the present study. The research questions (RQs) were:

- RQ1 Is there a connection between students' academic writing and reviewing skills?
- RQ2 Does success in writing an academic paper have an impact on self review skills?
- RQ3 Does success in writing an academic paper have an impact on peer review skills?

Setting. The study was conducted in the English Language Teaching (ELT) department of Canakkale Onsekiz Mart University (COMU), Turkey in the second semester of the 2012–2013 academic year. The ELT department was an appropriate choice because of the participants' proficiency in English. As mentioned by Gleason (2014), there is very little research on advanced level EFL learners, an omission which contributes to the importance of the present study. In addition, these students were familiar with peer review since COMU holds an institutional Turnitin licence allowing for student assignment submission.

Participants. Eighty-seven participants were chosen from 243 students, who were teacher candidates, registered on the day and evening Advanced Reading and Writing Skills course. Repeating students and the ones who did not submit a 3,000-word review paper at the end of the term were excluded. The researcher, also the course lecturer, pre-screened assignments handed in and excluded extensively plagiarized ones. The plagiarism threshold level was held to be 20%, excluding quotations and references. Since the ELT department is customarily female-dominant, female learners ($n = 64$) outnumbered male learners ($n = 23$). Their ages ranged between 18 and 36 with an average of 21.

Instruments. To score student papers, the Transparent Academic Writing Rubric (TAWR, Razi, 2013) was used. This includes 50 items, each worth 2 points, organized into five groups: *Introduction* (8 items); *Citation* (16 items); *Academic writing* (8 items); *Idea presentation* (11 items); and *Mechanics* (7 items). Razi reported Cronbach's alpha reliability of .89 for TAWR. Since this study aimed at comparing lecturer's scores with those of students, either their own or peer scores, intra- and inter-rater reliabilities were essential. Razi reported high intra-rater [Pearson's $r(55) = .99, p < .001$] and inter-rater [Pearson's $r(55) = .97, p < .001$] reliability for the instrument.

Data collection. Advanced Reading and Writing Skills is a two-semester course. The lecturer followed the course content suggested by Razi (2011). During the first semester, freshmen submitted five academic writing assignments, each approximately 500 words long. They reviewed one peer paper openly, using five detailed rubrics provided for each assignment. Peer review experience in the first semester aimed to familiarize students with the steps involved (Aghaee & Hansson, 2013; Hu & Lam, 2010).

In the second term, while students marked both their own papers and peers' papers, the contribution of anonymity in the peer review process was considered with emphasis on the role of Turnitin in supporting anonymity. To ensure anonymity, random students were assigned a co-student's paper one week after submission and provided with a copy of TAWR. Each student first reviewed and scored his or her own paper, then they peer-reviewed and scored another student's paper using TAWR. Students were informed that their self and peer review scores would be compared with the lecturer's and would influence their course scores.

At the beginning of the second term, students were given their academic writing assignment for that semester. The topic was different for each student. They attended five-minute individual tutorial sessions on six occasions, and received feedback on brainstorming, outlining, writing first and second drafts, revising and proofreading to enhance the writing process. Towards the end of the semester, they were again provided with a copy of TAWR, which was by now familiar to them. Such familiarization is also regarded as beneficial by Carless (2006). Sample assignments from the previous year were used to illustrate declarative, procedural and conditional information about using TAWR to score papers. More practice opportunities with the rubric naturally result in better performance during the review process (Lu & Law, 2012). The students then proofread their peers' papers using TAWR as a guide. The process-writing model followed in the course encouraged the development of autonomous skills such as integration of planning, monitoring, and evaluating. Awareness of the model's contribution was essential for the researcher since EAP writing teachers are expected "to have a better understanding of how instruction can assist students to achieve their goals" (Wette, 2014, p. 60). Figure 1 illustrates the process-writing approach followed during the second semester.

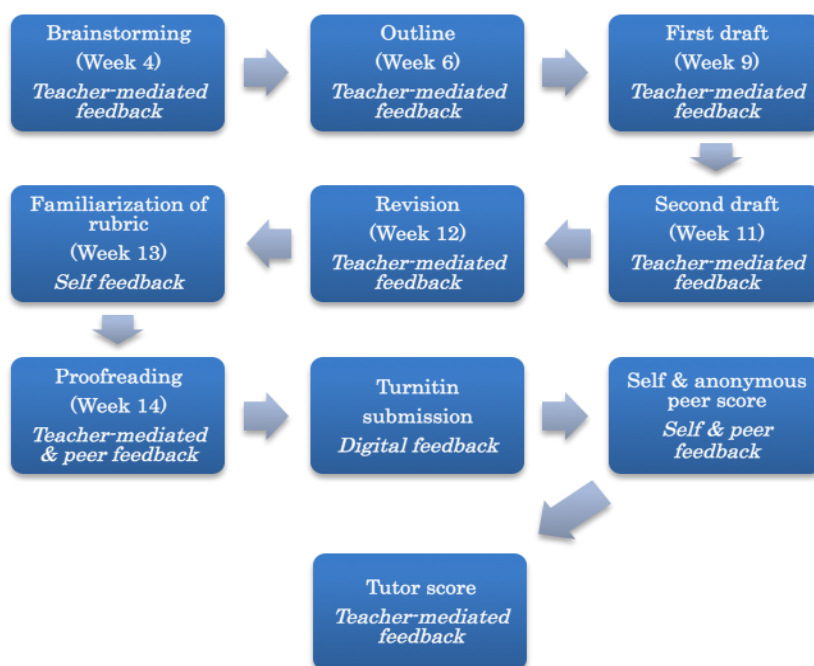


Figure 1. Illustration of process-writing approach and types of feedback given during second semester.

Before marking, assignments were screened to determine whether further TAWR evaluation was required. Pre-screening started with examination of the assignment outline, first and second drafts, and revised and proofread versions. Assignment length was considered and scores adjusted for papers of inappropriate length, i.e. too long or short. Following this, Turnitin reports were used to identify the quotation ratio. More than 10% was regarded as excessive and penalized accordingly. Finally, the Turnitin similarity report was used to detect plagiarism. These reports were used with caution and isolated instances of similarity were not regarded as plagiarism, for example, short portions of copied expressions in a single sentence that required citations. More than 10% similarity was regarded as excessive and penalized by deducting the over-run figure from each paper's overall score. Such a process enables tutors to continue scoring papers even when plagiarism is noted.

Data analysis. SPSS 20.0 was used to analyse the data. Descriptive statistics analysed students' demographic information. Pearson's correlation was used to identify relationships between the lecturer's and the students' self and peer scores. ANOVA was used to evaluate differences related to the student raters' and authors' abilities in academic writing. Post hoc Scheffé tests identified the sources of these differences.

Limitations of the study. The study has several limitations. First, Turnitin similarity reports may be inaccurate when students use sources not featured in their databases. In such cases, similarity reports do not report plagiarism. Second, results may not be generalizable to a broader population as data were collected from a single university in the Turkish tertiary context.

Findings and Discussion

Administration of the anonymous peer review runs smoothly using Turnitin. Managing the process without Turnitin is far less practical since undertaking the procedure manually is time-consuming and requires great effort (Robinson, 2002). In addition, quotation and similarity ratios for each assignment are quite helpful to obtain a preliminary idea about the quality of the assignment. The exact ratios cannot be retrieved without a digital tool. Turnitin has recently launched an anonymous peer review feature available for all users. Benefiting from digital technology was also regarded as beneficial as it

encourages better concentration (Bester & Brand, 2013). Online access to a lecturer's rubric for either self or peer review is also crucial to obtaining maximum benefit developing academic writing skills.

RQ1. To answer the three RQs, lecturer scores on students' 3,000-word assignments were considered. *RQ1* asks whether there is a connection between students' academic writing and reviewing skills. First, the gap between students' self scores and lecturer scores was calculated. Second, the gap between students' peer scores and lecturer scores was calculated. Mean values ($N = 87$) of these scores indicated large gaps both in lecturer-self ($M = 14.93$; $SD = 13.07$) and lecturer-peer ($M = 21.79$; $SD = 18.70$) scores. In the relevant literature, a gap up to 10 points over 100 is acceptable between raters to ensure inter-rater reliability. However, the mean scores indicate larger values in both instances. In the case of peer-review, the gap increases to almost 50%.

To cross-check the results, correlation values between student raters' and lecturer's scores were also considered. The expectation was that students who received higher scores from the lecturer would provide scores similar to the lecturer, both for their own and peers' papers. Conversely, students who received lower scores for their own papers from the lecturer were not expected to provide scores similar to the lecturer, either for their own or peers' papers. In this case, the correlation between lecturer score and self and peer scores for all participants should not reveal strong correlations due to inclusion of less successful students.

Therefore, the two scores provided by each student (self, peer) were analysed in terms of correlation with the lecturer's scores. In the first phase, lecturer scores were checked against self scores and this revealed a positive weak correlation value, Pearson's $r(87) = .24$, $p = .03$. Correlation coefficient squared reveals only 5.8% of variation ($R^2 = .06$). In the second phase, lecturer scores were checked against peer scores. This manifested again a positive weak correlation value, Pearson's $r(87) = .38$, $p < .001$. Converting this value into a percentage by means of the correlation coefficient squared indicates that it accounts only for 14.4% of variation ($R^2 = .14$).

As expected, the two correlation values indicate a very weak relationship between academic writing and reviewing skills. To put these values into perspective, the first correlation leaves 94.2% and the second 85.6% of the variability still to be accounted for by other variables. This implies that only a limited number of students have similar expectations to the lecturer either for their own or peers' papers. Weakness in academic writing skills appears to result in lack of correlation between lecturer's and reviewers' scores.

RQ2. To answer *RQ2*, whether success in writing an academic paper has an impact on self review skills, students were categorized into three groups (*good, acceptable, poor*) in accordance with their assignment scores. The good group ($n = 52$) consisted of freshmen who received between 80 and 100 points over 100; the acceptable group ($n = 25$) between 50 and 79 points; and the poor group ($n = 10$) below 50 points. The rationale for such a grouping was to reveal any differences due to capabilities in writing an academic paper. Later, students' self scores were taken into consideration.

For the mean difference between lecturer and self scores, ANOVA indicated significant differences between these three groups, $F(2, 84) = 70.40$, $p < .001$. Post hoc analyses using Scheffé post hoc criterion revealed that the good group ($M = 8.77$, $SD = 5.93$) varied significantly ($p < .001$) from the acceptable group ($M = 17.08$, $SD = 9.10$). The good group was also significantly ($p < .001$) different from the poor group ($M = 41.60$, $SD = 13.78$). As the mean values reveal, the gap between lecturer score and self scores was narrow. Moreover, the acceptable group was significantly ($p < .001$) at variance with the poor group. The mean value of the difference between lecturer and self scores was smaller than 9 in the good group. Thus, consistency between raters (lecturer and freshmen) was over 91%. Consistency decreased to 83% for the acceptable group and up to 58% for the poor group (Figure 2).

To sum up, these results indicated better self review performance for those who were better writers. An examination of the process of writing may reveal the reason for this success. In a previous study, the researcher (Razi, 2013) investigated the impact of individual tutorial sessions conducted for the same course (Advanced Reading and Writing Skills). Results highlighted a moderate positive correlation between attendance at tutorials and students' scores for their written assignments. In this case, success might be related to the development of autonomy, since individual tutorial sessions were designed to accelerate metacognitive writing strategies as students were required to explain their efforts to the tutor. Through this, they became aware of their strengths and weaknesses in each step of the writing process. Encouraging students to review is beneficial for the development of academic writing skills. A skilled reviewer relies on *self autonomy*. In other words, to identify either self or peers' strong and weak points, students need to develop *metacognitive skills*. To manage the review process successfully, one specifically needs to master two essential components of *metacognition*, namely *monitoring* and *evaluating*. Encouraging students to review written work results in development of academic writing skills. As identified in Grosser and Nel's (2013) study, developing academic language skills requires the involvement of critical thinking skills as components of metacognitive skills.

Because feedback contributes to the development of learner autonomy (Hu & Lam, 2010), providing feedback from multiple sources may assist students to develop metacognitive writing strategies needed to reflect on, criticize, and redraft their own papers (Lam, 2013). Such strategies support the development of learner autonomy, an essential goal for university students. Humphreys and Wyatt (2013) note that development of autonomy is culture-specific. In countries where students tend towards dependence before university, as in Turkey, encouragement of learner autonomy is essential.

RQ3. To address *RQ3*, whether success in writing an academic paper has an impact on peer review skills, the lecturer's scores were again considered following the procedure as for *RQ2* with similar criteria. Mean differences between the lecturer and peer scores were calculated. ANOVA indicated significant differences of $F(2, 84) = 9.91, p < .001$. Post-hoc analyses using Scheffé post hoc criterion revealed that the good group ($M = 18.51, SD = 18.18$) was not significantly ($p > .05$) different from the acceptable group ($M = 19.67, SD = 12.16$); however, it was significantly ($p < .001$) different from the poor group ($M = 44.30, SD = 20.43$). The acceptable group was significantly ($p < .001$) different from the poor group. Figure 2 illustrates the gaps between the lecturer's score and student scores considering both self and peer review results.

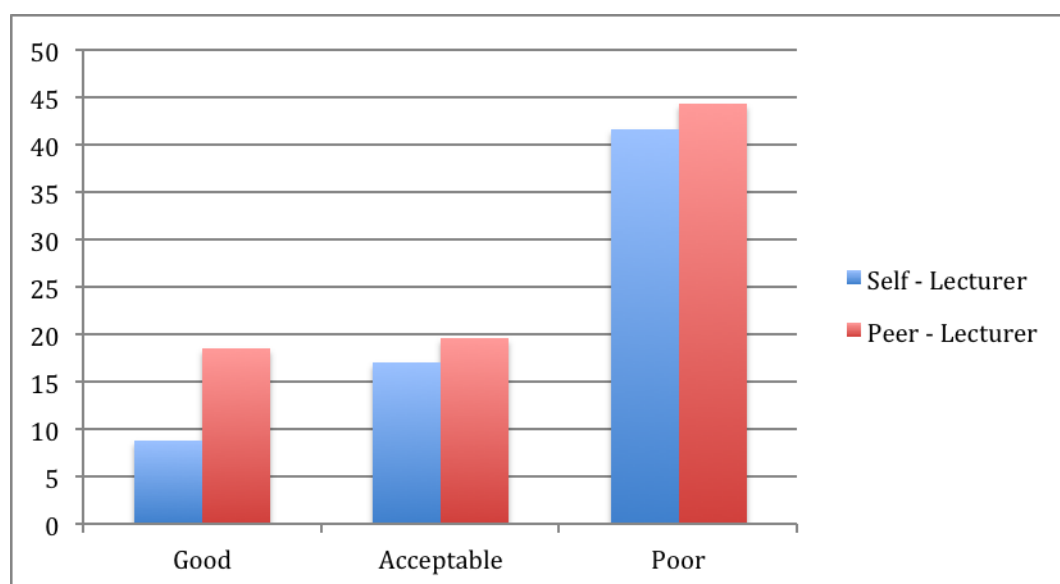


Figure 2. Gaps (out of 100) between lecturer and student scores.

The findings here again suggest that better writers gave better peer reviews. It is clear that developing academic writing skills enables better self and peer review skills. RQ3 dealt with an anonymous peer review process that was more challenging as not all students were familiar with the topic of the paper they were given to review (assignments were different for each student); however, it could be inferred that better writers can overcome this challenge since they are more autonomous, yet this is not the case for those with less well-developed writing skills.

Conclusions

The findings in this study suggest that success in writing an academic paper and reviewing skills are correlated. Each contributes to the development of the other. The following conclusions can be drawn. First, effective review cannot be provided by every student. Reviewing could be problematic for less accomplished writers.

Second, freshmen's success in writing an academic paper is an indicator of their success in self reviewing and scoring. Those who received higher scores for their academic assignments demonstrated inter-rater reliability at an acceptable level but those with lower scores could not manage the review process as capably.

Third, freshmen's success in writing an academic paper is an indicator of their success in peer review and scoring, parallel to their self review skills. Those who received higher scores managed the review process more successfully. It should be noted, however, that freshmen in the good group performed better self than peer reviews. Familiarity with their own topic seemed to facilitate identification of their own strengths or weaknesses. Those who received lower scores lacked essential academic writing skills and experienced difficulty with self review. In other words, weak students struggle to identify their own errors since they are not aware of them and the task becomes more complex when they work on unfamiliar topics for the peer review process.

Fourth, anonymous peer review can be integrated in EAP writing classes easily with the help of Turnitin. In this case, reviewers had no expectation from the paper with reference to its author. The task forces the reviewer to focus only on the strengths and weaknesses of the paper as it stands. This does not imply that self- or peer-revision is the outcome variable rather than the academic writing performance, since Turnitin's review features are tools to help improve writing skills in the first place.

Implications

The findings of the present study highlight that success in writing an academic paper is related to the success in reviewing skills. Moreover, Black and William (1998) provide evidence on the impact of Assessment for Learning (AfL) which calls for "closer alignment between assessment, teaching and learning" (Mak & Lee, 2014, p. 74). Thereby, self and peer scores should be incorporated in the marking procedure. This then functions as one of the essential principles of Hattie and Timperley's (2007) AfL-oriented writing classes. This does not necessarily mean a student's final score will be a combination of lecturer, self and peer scores. However, self and peer scores should make an indirect contribution. Mean differences between the three scores (lecturer, peer, self) should be considered. The following formula may function as a model: $Final\ score\ (out\ of\ 100) = (lecturer\ score \times .60) + ((100 - (difference\ between\ lecturer\ and\ self\ score)) \times .20) + ((100 - (difference\ between\ lecturer\ and\ peer\ score)) \times .20)$. Although such assessment can be carried out manually, plagiarism detectors calculate such scores automatically and may be more practical. This may contribute to recent interest among writing researchers who aim to enable automated writing evaluation (e.g., Li, Link, Ma, Yang & Hegelheimer, 2014; Phillips, 2007). This feature may also encourage tutors who have little knowledge of eLearning and are resistant to the integration of digital devices into their work. As a final word, this approach may fulfil the expectations of Bayaga and Wadesango (2013), as they encourage eclecticism in the assessment process.

The incorporation of review skills into assessment procedures allows student work to be evaluated from different perspectives. Moving beyond mere consideration of academic writing skills might result in more valid and reliable assessment. Such an approach to the assessment of writing takes reviewers' scores into consideration —not to mark peers' papers but to have an impact on the reviewers' own final scores. Effective reviewers are rewarded for their strengths in reviewing.

Feedback is different from scoring. As an alternative, anonymous peer review might be used as a vehicle for proofreading (i.e. receiving peer feedback) prior to submitting the assignment to the lecturer. In addition, to provide richer feedback, multiple reviewers could be used for the same paper. Going one step further, to maximize the impact of self, peer, and tutor reviews, students may be asked to submit all drafts through Turnitin. Enabling peer review in addition to tutor review for each submission will provide valuable feedback, especially for those who are weak in academic writing skills.

Providing effective feedback may not be accomplished by every student. Specifically, the feedback provided by novice students seems to be ineffective. Then, the solution might be matching multiple peers for each review. Turnitin enables matching each student paper with several reviewers. In this case, teachers can give importance to matching reviewers with papers, as each paper needs to benefit from at least one expert reviewer.

The present study proposes a new feedback type, namely *digital*, based on the reports of plagiarism detectors such as Turnitin. Multiple feedback sources assist students in developing self-reflection skills related to autonomous practices, as identified in ZPD (Vygotsky, 1978). Feedback practices can be problematic when learners misinterpret the feedback (Kleijn et al., 2013). Providing multiple sources of feedback may help address this problem. As peer feedback is said to be more beneficial for the reviewer than the author (Lu & Law, 2012), multi-source feedback may readdress the balance by increasing the impact for the author.

Acknowledgements

I would like to express my sincere thanks to Graham Lee and the editors at Edanz for proofreading the earlier versions of the manuscript. I would also like to thank the anonymous reviewers for their insightful comments and the student-participants of this study for their invaluable contribution.

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Investigating the Relationship among Internet Addiction, Positive and Negative Affects, and Life Satisfaction in Turkish Adolescents*

Bülent Baki Telef*

Çanakkale Onsekiz Mart University

Abstract

This study investigates the relationships between Internet addiction and the areas of life satisfaction and positive or negative affects in Turkish adolescents. The research sample comprised 358 students studying in the sixth, seventh and eighth grades at four different middle schools in Canakkale city centre during the 2012–2013 academic year, of which 189 (52.8%) were females and 169 (48.2%) were males. Of the participants, 131 (37%) were sixth graders, 90 (25%) were seventh graders and 137 (38%) were eighth graders. The Internet Addiction Scale, the Multidimensional Student's Life Satisfaction Scale and the Scale of Positive and Negative Experience were used as data collection instruments in the study. Research data was analysed using Pearson's product-moment correlation technique and multiple linear regression. The results indicated that there was a significant negative correlation between Internet addiction and school and family satisfaction, and a significant positive relationship between Internet addiction and negative affects. The regression analysis results indicated that school satisfaction and negative affects are important predictors of Internet addiction. The results suggested that increasing adolescents' school satisfaction and developing their ability to regulate their emotions might be useful in decreasing Internet addiction.

Keywords: adolescent, internet addiction, life satisfaction, positive affects, negative affects

* This study was presented at the 12th Psychological Counselling and Guidance Congress as an oral presentation, 8–11 September, İstanbul, 2013.

* Bülent Baki Telef is an assistant professor at the Department of Guidance and Counselling in Canakkale Onsekiz Mart University, Turkey.

Correspondence: bakitelef@gmail.com

Introduction

The Internet has created a new platform for social interaction, which has been widely recognised for its importance and increasing influence. The Internet is now a major part of people's lives and has proven to be an irresistible attraction for some users. With the increasing importance of the Internet and its increased use, pathological Internet use has become more widespread in society (Nalwa and Anand, 2003). The concept of Internet addiction is defined as the uncontrolled and devastating use of Internet technology (Beard and Wolf, 2001). LaRose, Lin and Eastin (2003) state that Internet addiction may also be re-defined as deficient self-regulation. Internet addiction is widespread across both Western and Eastern societies, and may therefore be considered a global disorder (Ko et al., 2012). The prevalence of Internet addiction was found to be 10.8% in China (Lam et al., 2009), 18.8% in Taiwan (Ko et al., 2009), 8.2% in Greece (Siomas et al., 2008), 3.1% in Finland (Kaltiala-Heino et al., 2004) and 11.6% in Turkey (Canan et al., 2010).

Adolescents who do not live with their biological parents or those who do not receive attention from their parents, as well as those whose parents are unemployed, are faced with the risks of both pathological and maladaptive Internet use (Durke et al., 2012). The characteristics of online games may increase the potential for Internet addiction (Ko et al., 2005). Adolescents who have a computer in their homes have a higher tendency towards Internet addiction (Ak et al., 2013). The amount of Internet use appears to be an important symptom of Internet addiction (Andreou and Svoli, 2012; Ceyhan, 2011). It was ascertained that mental health problems may arise when Internet use exceeded two hours a day (Kelleci et al., 2009).

Internet use is indispensable for adolescents for useful purposes such as schoolwork, information gathering and communication (Eryaman, 2007; Subrahmanyam & Lin, 2007). Adolescents use the Internet as a socialization tool; however, excessive Internet use may lead to family problems, malnutrition, self-negligence, social withdrawal and spending most of one's time on online activities (Cao et al., 2011). Problematic Internet use by adolescents is related to psycho-social and emotional problems (Kormas et al., 2011). Studies have ascertained that psychological symptoms are considerably related to Internet addiction (Cao et al., 2011; Kelleci et al., 2009; Ko et al., 2012; Yang, 2001).

Subjective well-being is described as a person's own cognitive and emotional assessment of life (Diener, 1984). Cognitive assessment includes judgments of life satisfaction, while emotional assessment includes satisfactory and unsatisfactory emotional reactions (Diener and Diener, 1996). Researchers investigating the effect of Internet use on well-being have attained different results from those of the studies cited above. Chen (2012) states that social Internet use may enable students to be psychologically healthier. It has been found that the quality of friends on the Internet and the time spent with such friends are positively related with the well-being of adolescents (Valkenburg and Peter, 2007). Communicating with friends online has a positive impact on subjective well-being (Wang and Wang, 2011). Positive feedback received from friend networks increases adolescent subjective well-being (Valkenburg et al., 2006). Despite these findings, other studies have found a negative relationship between Internet addiction and subjective well-being or life satisfaction (Cao et al., 2011; Chen, 2012; Ko et al., 2005).

Although the relationship between subjective well-being and Internet addiction has been studied, there are only a limited number of studies focusing on the relationship of areas of life satisfaction and positive or negative affects that constitute the sub-dimensions of subjective well-being with Internet addiction. This study aims to investigate the relationships between areas of life satisfaction, positive or negative affects and Internet addiction in Turkish adolescents. The present study is of importance due to its contribution to future studies on the prevention of Internet addiction.

Method

Participants

The research study group comprised 358 students who studied in the sixth, seventh and eighth grades in four different middle schools in Çanakkale city centre during the 2012–2013 academic year,

of which 189 (53%) were female and 169 (47%) were male. Of the participants, 131 (37%) were sixth graders, 90 (25%) were seventh graders and 137 (38%) were eighth graders. When the distribution of the students by age are investigated, 22 (6%) were 11, 95 (27%) were 12, 103 (29%) were 13, 127 (35%) were 14 and 11 (3%) were 15-years old. The participants ranged from 11 to 15 years of age. Students had a mean age of 13 (Sd=0.99).

Measures

Multidimensional Student's Life Satisfaction Scale (MSLSS). Multidimensional Student's Life Satisfaction Scale was developed by Huebner (1994) and adapted into Turkish by Çivitci (2007). The original scale is a four-point Likert-type scale (1-Never, 2-Sometimes, 3-Often and 4-Always) comprising 40 items with the five sub-dimensions of family, friend, school, environment and self. The construct validity of the Turkish version of the scale was tested using factor analysis conducted with data obtained from 516 students. The Turkish version of the scale comprised five factors with factor loadings ranging from .34 to .81 and had a total of 36 items. The total variance explained collectively by the five factors was 44.50%. The internal consistency coefficients of the scale were found to be .92 in 'total' score, .82 in the 'family' sub-scale, .85 in the 'school' sub-scale, .85 in the 'friend' sub-scale, .82 in the 'self' sub-scale and .83 in the 'environment' sub-scale.

Internet Addiction Scale (IAS). The Internet Addiction Scale was a 20-item Likert-type scale developed by Young (1998), with each item being assigned 1 to 6 points. The score range was 20 to 180. High scores indicated high Internet addiction. The adaptation of the scale into Turkish was completed by Bayraktar (2001), and its Cronbach's alpha internal consistency coefficient was .90.

Positive and Negative Experience Scale (PNES). The Positive and Negative Experience Scale was a short instrument designed by Deiner et al. (2010) for assessing positive and negative affects and well-being. The scale's adaptation into Turkish with adolescents was conducted by Telef. The validity study conducted by Telef (2013) with an adolescent sampling resulted in factor loadings of scale items ranging from .54 to .76. Fit indices calculated in the confirmatory factor analysis were found to be RMSEA = 0.04, SRMR = 0.03, GFI = 0.96, NFI = 0.97, RFI = 0.96, CFI = 0.99 and IFI = 0.99. The Cronbach's alpha coefficient attained in the reliability study of the scale was .84 for the positive experience dimension and .75 for the negative experience dimension. Each item of the Positive and Negative Experience Scale was scored on a scale between 1 and 5, where 1 represented 'very rarely or never' and 5 represented 'very often or always.' The parts of the scale were scored separately as they measure independent feelings, or two types of feelings. The total positive or negative affect scores ranged from 6 to 30.

Statistical Analysis

The research data was analysed using correlation and multiple linear regression via the SPSS 16.0 software program. The relationship between life satisfaction areas, positive or negative affects and Internet addiction were identified using Pearson's product-moment correlation analysis. Multiple regression analysis was used to identify whether life satisfaction areas and positive or negative affects predicted Internet addiction.

Results

The results of Pearson's product-moment correlation analysis indicating the relationships between Internet addiction and life satisfaction areas and positive or negative affects are provided in Table 1.

Table 1. Relationships between Internet addiction and life satisfaction areas, and positive-negative affects.

Variables	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
(1) Internet addiction	1							
(2) Friend satisfaction	-.6	1						
(3) School satisfaction	-.22**	.34**	1					
(4) Environment satisfaction	-.09	.41**	.37**	1				
(5) Family satisfaction	-.16**	.43**	.43**	.41**	1			
(6) Self -satisfaction	.05	.57**	.40**	.42**	.49**	1		
(7) Positive affects	-.06	.39**	.40**	.30**	.35*	.47*	1	
(8) Negative affects	.24**	-.31**	-.30**	.18*	-.29**	-.35**	-.49**	1
Mean	28.32	26.54	23.80	21.25	24.02	19.33	23.43	13.96
Standard deviation	22.06	4.69	4.98	5.20	4.17	3.59	5.35	5.44

* $p < .05$

** $p < .01$

Correlation analysis indicated that there was a significant negative relationship between Internet addiction, school satisfaction ($r = -.22, p < .01$) and family satisfaction ($r = -.16, p < .01$); there was also a significant negative relation between Internet addiction and negative affects ($r = .24, p < .01$). No significant relationship was observed between Internet addiction and friend satisfaction, environment satisfaction, self-satisfaction or positive affects.

Multiple regression analysis results for life satisfaction areas and positive or negative affects predicting Internet addiction are provided in Table 2.

Table 2. Multiple regression analysis results for life satisfaction areas and positive-negative affects as predictor of Internet addictions.

Variable	B	Standard Error	β	t	p
Constant	22.45	10.98		2.04	.04
Friend satisfaction	.18	.30	.04	.60	.55
School satisfaction	.84	.26	-.19	3.17	.00
Environment satisfaction	.08	.25	-.02	.32	.75
Family satisfaction	.56	.33	-.11	1.68	.09
Self-satisfaction	.57	.43	.9	1.33	.18
Positive affects	.48	.27	.12	1.81	.07
Negative affects	1.01	.24	.25	4.19	.00

$R = 0.33, R^2 = .11, F_{(8,349)} = 9.73, P = .00$

The results of multiple linear regression analysis indicated that school, family, friends, environment, self-satisfaction and positive and negative affects explained 11% of Internet addiction. School satisfaction ($\beta = -.19, p < .05$) and negative affects ($\beta = .25, p < .05$) significantly predicted Internet addiction. However, family satisfaction ($\beta = -.11, p > .05$), friend satisfaction ($\beta = .04, p > .05$), environment satisfaction ($\beta = -.02, p > .05$), self-satisfaction ($\beta = .9, p > .05$) and positive affects ($\beta = .12, p > .05$) did not significantly predict Internet addiction.

Discussion

This study investigated relationships between Internet addiction, areas of life satisfaction and positive or negative affects in adolescents. Results indicate a significant negative correlation between Internet addiction and school and family satisfaction, and a significant positive relationship between Internet addiction and negative affects. School satisfaction and negative affects were observed as important predictors of Internet addiction.

When the literature was reviewed, a negative relationship was found between Internet addiction and life satisfaction (Cao et al., 2011; Ko et al., 2005). Cao et al. (2011) state that all life satisfaction areas of adolescents with problematic Internet use were low. Daily Internet use was indirectly related to the well-being of adolescents through compulsive Internet use (Van Der Aa, 2009). Online communication in lieu of face-to-face or real communication was characterized by poor social bonding, which threatens well-being (Subrahmanyam and Lin, 2007).

The present study found that the life satisfaction areas of family and school satisfaction had a negative relationship with Internet addiction. Additionally, school satisfaction was found to be an important predictor of Internet addiction. The negative relationship between Internet addiction and family satisfaction has been supported by previous studies (Cao et al., 2011; Lam et al., 2009; Li et al., 2014). Internet addiction negatively influences family relationships (Tsitsika et al., 2011). Conflict with family is a risk factor for Internet addiction (Wang et al., 2011; Yen et al., 2009). Good family function was found to have a negative relationship with Internet addiction (Yu and Shek, 2013), while poor family function was found to have a positive relationship in the same context (Ko et al., 2007; Yen et al., 2007). Ayas and Horzum (2013) state that families with negligent attitudes toward the Internet played an important role in Internet addiction. Adolescents who received low social support from their families tended to exhibit high Internet addiction (Gunuç and Doğan, 2013). Adolescents who received less support from their families were more likely to make online friends (Subrahmanyam and Lin, 2007). Adolescents used the Internet to overcome their lack of family support. This phenomenon may increase risky and pathological behaviours (Durke et al., 2012).

The research indicated that excessive Internet use was related to poor school performance (Ko et al., 2005; Mythily et al., 2008; Stavropoulos et al., 2013; Wang et al., 2011), inadequate commitment to school (Yen et al., 2009), alienation from school (Huang and Leung, 2009) and dropping out from school (Tsitsika et al., 2011). Wang et al. (2011) state that adolescents who experienced stress in school studies and had poor relationships with classmates had a higher risk of Internet addiction.

Negative affects were found to be an important predictor of Internet addiction. These results are consistent with the studies in the literature (Douglas et al., 2008; Spada et al., 2008; Şenol-Durak and Durak, 2011). The emotional aspects of subjective well-being play an important role in Internet addiction (Şenol-Durak and Durak, 2011). Negative affects, such as attention deficit and hyperactivity disorder, hostility, social phobia and depression, were important predictors of Internet addiction (Ko et al., 2009; Ko et al., 2012). Adolescents who played online games at risk levels demonstrated less emotional efficacy than other users (Seo et al., 2012). Individuals also used the Internet to self-regulate (Spada et al., 2008) or cope with negative experiences (Douglas et al., 2008).

Conclusions

This study investigates the relationships between Internet addiction, areas of life satisfaction and positive or negative affects in Turkish adolescents. The results indicate that there was a significant negative correlation between Internet addiction and school and family satisfaction, and that there was a significant positive relationship between Internet addiction and negative affects. The results showed that increasing adolescents' communication with their families and positive family functions and school satisfaction, as well as interventions for developing their ability to regulate their emotions may be useful in decreasing Internet addiction. In this respect, it will prove useful for school psychological counsellors to include skills for increasing good family functions, school satisfaction and for regulating negative affects or emotions in their intervention programmes aimed at preventing Internet addiction among adolescents. The most important limitation of the present study is that it was conducted only among sixth, seventh and eighth grade students in Canakkale province in Turkey. The study measures were self-report. In future studies, the use of multiple methods of assessment would enhance the meaningfulness of the findings.

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A Case Analysis of the Turkish Football in regard to the UEFA's 10- Point Action Plan against Racism

Necati Cerrahođlu*

Çanakkale Onsekiz Mart University

Abstract:

Football is enjoyable and meaningful together with the fans. However, the hate crimes (racism, discrimination, humiliation, xenophobia and Islamophobia) are social diseases of some fan groups, and threaten public safety and the social life. UEFA has been determined to fight against hate crimes in football by creating a network called FARE, and by implementing a road map called 10-Point Action Plan since 2003. The purpose of this case study is to analyze the Turkish Football in relation to the UEFA's 10- Point Action Plan against Racism. The findings of this study revealed that the policies implemented in Europe with success were hardly put into practice in Turkey. No policies were developed to implement the UEFA's 10-Point Action Plan and the recommendations of the European Commission were not taken into consideration in Turkey. Although the football produces a very significant economic resource, no funds were allocated to education of Turkish football fans.

Keywords: *Football, Fan, Education, 10-Point Plan of Action, the EU White Paper*

*Dr. **Necati Cerrahođlu** is the head of the department of sport management and the director of the Sports Academy at the Canakkale Onsekiz Mart University. His main research interests are in the areas of sports media, sports journalism, sports economics and sports management.

Correspondence: necerrahoglu@comu.edu.tr

Introduction

Sport is believed to strengthen and protect the social structure and to help young people develop positive behaviors; thus, many countries back up sport with significant funding. Major sporting events such as the Olympic Games, World Cup, and European Championships attract global interest, and football has a privileged position within sport. This game attracts worldwide audiences and generates a vast industry. Due to its popularity, football also creates an exquisite platform that allows minority groups in a country to express themselves on the club level and in the world arena.

Sport is the largest social movement of Europe and it holds particular importance because of its unifying and integrating characteristics. Indeed, the European Parliament has supported sport for its contribution to the European integration process (Tokarski, 2001). The European Union (EU) Sport Commission Rome Declaration clearly highlighted sports' important role in society and its active value in social life, communication, integration, health, education, and the environment as it encourages communal living (De Keper, 2001).

The first negative effects of the rapid commercialization of sports were seen in football after 1990 when hate crimes emerged as the primary issue. Social deviations such as racism, discrimination, humiliation, xenophobia, and Islamophobia are constraints for public authorities.

The EU has called for public authorities to fight against excessive behaviors such as violence in football and recommended supporting the campaigns of non-governmental organizations (NGOs) working in this field. Hate crimes, which are quite common in football, are a social problem in the EU and various funds have been allocated to help volunteer organizations and NGOs take an active role in fighting against them. The Union of European Football Associations (UEFA) is also determined to fight against hate crimes in football; it created a network called Football against Racism in Europe (FARE) and implemented a road map called the 10-Point Action Plan in 2003. The purpose of this case study is to analyze Turkish football in relation to the UEFA's 10-Point Action Plan against racism.

Hate Crimes Record of Football Fans

Since the 1980s, football fans across Europe have been involved in violent incidents. The most important one is the Heysel disaster of 1985. After this incident, hooliganism was identified as a priority issue to tackle. Penalties for football clubs, and bans and international travel prohibitions for the involved supporters, were introduced. Racist and discriminatory behaviors became a vital issue after the 1990s. Examples of the excessive behavior of football fans include:

- *December 1991, Scotland:* Alarmed by the rise in far-right activity at Scottish grounds, football supporters formed a campaign to combat racism in football, Supporters' Campaign against Racism in Football (SCARF).
- *July 1992, Italy:* Lazio fans showed their anger at the club's new signing, Holland's Surinamese-Indian, Aaron Mohammed Winter, by scrawling "we don't want neither nigger nor Jew" on a wall of the club's headquarters.
- *October 1993, Germany:* During a European championships qualifier between Germany and Turkey, German fans chanted repeatedly "Kreuzberg must burn"; Kreuzberg is an area in Berlin where many Turks live.
- *December 1994, Spain:* Fans of Sporting Gijon sprayed "red and white yes, black no" on the walls of their stadium after the club signed Nigerian Rashidi Yekini.
- *October 1995, Netherlands:* The Dutch Football Association protested to the UEFA about racist abuse against Ajax's black players during a UEFA Champion League match against Ferencvaros in Budapest.

- *June 1996, France:* Jean Marie Le Pen, president of the Front National, said that French players of ethnic minority origin should not sing the national anthem because they are “not worthy” to represent the nation.
- *September 1998, Austria:* Austrian fans chanted anti-Semitic slogans throughout a game between Austria and Israel.
- *February 1999, Turkey:* After Kevin Campbell signed for Trabzonspor, the president of the club said: “We bought a cannibal who believes he is a forward.”
- *November 2000, Italy:* Racist abuse was heaped on Liverpool’s Emile Heskey throughout England’s friendly in Turin.
- *August 2001, Romania:* During the derby against Rapid Bucharest, Dinamo supporters displayed a huge banner on the terrace saying “More Tigane” (Death to the Gypsies).
- *October 2001, Czech Republic:* Bayern Munich players Samuel Kuffour and Pablo Thiam were subjected to monkey chants from Sparta Prague fans during their UEFA Champion League match.
- *October 2001, Portugal:* Racial abuse was directed at Emile Heskey by Boavista fans. The Liverpool and England striker said afterward: “It does happen a lot in Europe and the fact is I have got used to it. I have had to.”
- *October 2002:* A series of games during UEFA club competitions involved incidents of racial abuse of players, with the Euro 2004 qualifier, Slovakia vs. England, subject to mass racist chanting.
- *April 2003, England:* Supporters at the England v. Turkey match used racist abuse against other fans and players (UEFA & FARE, 2003).

Prof. Dr. Andreas Zickler (2010) identified these inappropriate behaviors as syndromes. He studied behavioral disorders diligently in the football fields. His studies revealed that individual behaviors and attitudes affect group character. The results of several research studies demonstrated that xenophobia and Islamophobia rose between 2002 and 2005, even though the findings in 2010 indicated a downtrend. The results also indicated that racism has existed for many years and that racist attitudes against the homeless and homosexuals have risen along with anti-Semitism. However, hostile attitudes toward people with disabilities have declined (Zickler, 2010).

Initiatives against Hate Crimes

Coalition of Cities against Racism

The International Coalition of Cities against Racism was founded by the United Nations Educational, Scientific, and Cultural Organization (UNESCO) in 2004. The initiative is based on the insight that the local level plays a key role in combating discrimination and exclusion. Involving cities is a good way to put international conventions, recommendations, and declarations into practice.

Several regional networks have been established to define appropriate local strategies to fight racism: in 2004 in Europe, in 2005 in North America, in 2006 in Asia, Africa, and Latin America, and in 2008 in the Arab region.

The German city of Nuremberg has taken on the main responsibility for the European Coalition: It hosted the inaugural conference in December 2004 and has been the “lead city” for the European coalition of cities (ECCAR) ever since. Under the coordination of the respective lead city,

each coalition defines its own 10-Point Plan of Action. The plan is composed of 10 commitments covering the various areas of competence of city authorities, such as education, housing, employment, and cultural activities. It is adapted to the specific circumstances of cities in the region and members of the coalition share experiences at regular meetings. In 2008, all regional coalitions were combined into the global coalition of cities. UNESCO's objective is to create a global network of cities interested in sharing experiences to improve their policies to fight racism, discrimination, xenophobia, and exclusion (Coalition of Cities against Racism, 2004).

Football - Migrants - Minorities - NGOs

Sport, especially football, is a global pursuit. Football is played with the same rules everywhere and is accepted by large communities because of its simple playing materials and the high excitement generated by the game. Furthermore, football is a great communication tool as it can generate contact between minorities and communities and help them establish their identity (Heitmeyer, 2000).

Europe's largest immigrant groups are located in Germany. The biggest integration success of this immigrant group is realized through football. In football, the issue of how to overcome the problems of minorities takes on a positive dimension; they gain self-confidence at schools, workplaces, and sport clubs via the coaches and referees through the internet network and this gives them an opportunity to build self-esteem (Dembowski, 2010).

Bundesliga broke the audience record worldwide for the seventh time during the 2007-2008 season. With an average of 40,000 spectators in the stadium watching the matches, Germany rose to the leading position in the world. When the 2006 World Cup took place in Germany, the stadiums were modernized to host the matches. As a valuable product, football was glorified for moving away from the tense atmosphere of the ancient Roman gladiators and creating a supporter culture with fan songs (Gabriel, 2008).

The Alliance of Active Football Fans (Bündis Aktiver Fussballfans e.V. (BAFF)) was established across Germany in the 1993/1994 season to protect the public interest. BAFF was established as an umbrella organization; it has organized isolated minorities to meet twice per year and started fan congresses with the attendance of 4,000 people. BAFF's board of directors is composed of minorities; its aim is to fight racist oppression and, therefore, it has supported demonstrations against racism and for democratic rights at the stadiums and in the streets. In a short time, through partnerships and joint moves with other fan groups, BAFF became a structure that can spread a strong message. From 1994 through 2006, it offered effective training programs and public opinion actions, and "the return of the decoder" and "postcards" campaigns were carried out. Cooperation was established with FARE and also collaboration in campaigns of the UEFA and FIFA (Dembowski, 2008).

Prof. Dr. Gunter A. Pilz stated that xenophobia and racism were serious threats to German democracy and cultural policy and football should be given necessary importance as it performs as a "social telescope" that can raise an alarm. It is clear that racism and xenophobia signal dangerous social developments (Pilz, 2008, p. 16).

UEFA and FARE Cooperation

In 2001, the UEFA began a partnership with the FARE network through financial support. One million Swiss francs were donated to the network in August 2001, and a further donation of 400,000 Swiss francs was made to help fund the Unite against Racism conference in London. In October 2002, a joint letter was sent to the entire European football family issuing a 10-point action plan to encourage action at the club level. The UEFA also supports its member associations in undertaking anti-racist action at the national level with a new financial assistance scheme approved by the UEFA Executive Committee in November 2002. On March 5, 2003, a landmark event in tackling racism occurred at Chelsea FC, in London. The FARE and UEFA worked together to organize the

Unite against Racism conference to bring together representatives of all 52 European footballing nations to exchange ideas and information and to set out a response to this problem. The Good Practice Guide is one practical outcome of the conference and reflects the intention to deliver change. Lasting change will only be achieved through sustained work that reflects local and national realities, undertaken in a spirit of partnership. Although numerous problems and challenges exist, the endeavor has the potential to unite.

UEFA's 10-Point Plan of Action for Professional Football Clubs

Originally brought together by FARE in 2002, the 10-Point Plan of Action for Professional Football Clubs sets out a variety of measures that football clubs can take:

1. Issue a statement saying the club will not tolerate racism, spelling out the action it will take against those engaged in racist chanting. The statement should be printed in all match programs and displayed permanently and prominently around the grounds.
2. Make public address announcements condemning racist chanting at matches.
3. Make it a condition for season ticket holders that they will not take part in racist abuse.
4. Take action to prevent the sale of racist literature inside and around the grounds.
5. Take disciplinary action against players who engage in racial abuse.
6. Contact other clubs to make sure they understand the club's policy on racism.
7. Encourage a common strategy between stewards and police for dealing with racist abuse.
8. Remove all racist graffiti from the grounds as a matter of urgency.
9. Adopt an equal opportunity policy in relation to employment and service provision.
10. Work with all other groups and agencies, such as the players union, supporters, schools, volunteer organizations, youth clubs, sponsors, local authorities, local businesses, and police, to develop pro-active programs and raise awareness of campaigns to eliminate racial abuse and discrimination (UEFA & FARE, 2003).

In 2003, the UEFA and FARE jointly published a good practice guide for tackling racism in European football following the first Unite against Racism conference at Chelsea FC in London. The guide looked at the issues facing national associations and reported on activities being undertaken by key actors in European football. In 2003, the need to tackle racism was already understood as an issue the European game needed to address with vigor. Since then, the political and sporting environment has moved it further up the agenda. Within the game, there has been concern about players who have been abused at the highest level; in some countries, far-right and neo-Nazi activities around stadiums have become more evident, and prominent individuals have made abusive comments that have been broadcast around the world.

These incidents have led to concerns on the political level, with governments seeking to intervene to encourage and support the process of tackling racism and discrimination. Club football is at the heart of sports. The clubs themselves, their players, and fans make the news week in and week out for most of the year. The club is where many of the most dynamic developments in the game take place and it is at the club level that action to tackle racism bears the most fruit.

The Historic Decision of the European Commission – The White Book of Sports

Sport is a growing social and economic phenomenon which makes an important contribution to the European Union's strategic objectives of solidarity and prosperity. The Olympic ideal of developing sport to promote peace and understanding among nations and cultures and educating

young people was born in Europe and has been fostered by the International Olympic Committee and the European Olympic Committees.

Sport is an area of human activity that greatly interests citizens of the European Union and has enormous potential for bringing them together, reaching out to all regardless of age or social origin. According to a November 2004 Eurobarometer survey, approximately 60% of European citizens participates in sporting activities on a regular basis within or outside some 700,000 clubs, which are themselves members of a plethora of associations and federations. The vast majority of sporting activity takes place in amateur structures. Professional sport is of growing importance and contributes equally to the societal role of sport. In addition to improving the health of European citizens, sport has an educational dimension and plays a social, cultural, and recreational role. The societal role of sport also has the potential to strengthen the EU's external relations. Strengthening the prevention of and fight against racism and violence at sports events, especially football matches, remains a disturbing problem and can take different forms. The violence has been shifting from inside stadiums to outside, including urban areas. The European Commission is committed to contributing to the prevention of incidents by promoting and facilitating dialogue with member states, international organizations (e.g., Council of Europe), sport organizations, law enforcement services, and other stakeholders (e.g., supporters' organizations, local authorities). Law enforcement authorities cannot deal with the underlying causes of sport violence in isolation.

Sport attracts European citizens, with a majority of people taking part in sporting activities on a regular basis. It generates important values such as team spirit, solidarity, tolerance, and fair play, thus contributing to personal development and fulfilment. It also promotes the active contribution of EU citizens to society and thereby helps to foster active citizenship. On July 11, 2007, the European Commission published a *White Paper on Sport*, acknowledging the essential role of sport in European society, in particular in tackling the new threats and challenges that have emerged in European society, such as commercial pressure, exploitation of young players, doping, racism, violence, corruption, and money laundering. In the report, the Commission encouraged the exchange of best practice and operational information on risk-supporters among police services and/or sport authorities. Particular importance was given to police training in crowd management and hooliganism.

The Commission recommended that sport federations establish procedures for dealing with racist abuse during matches, based on existing initiatives. It also encouraged strengthening the provisions regarding discrimination in licensing systems for clubs.

The Activities of Football Fan Organizations in Turkey

In Turkey, the classical fan understanding in which the fans just want their teams to win has continued. The fan organizations, which oppose the loss of common gains by focusing on problems arising due to commercialization in football, are not active. The organizations that are reacting to the calls of FARE and the European Commission are extremely limited. Intellectual NGOs of Europe and publications introducing FARE are limited as well (Cerrahoglu, 2006).

CARSI, which is an organization of Besiktas Football Club Fans, the Union of Active Fans in Football (FATAB), which was founded by academicians, and the Federation of All Football Fans (TFTF), including 17 different fan organizations, have focused on many problems in football, including racism and discrimination (Cerrahoglu, 2012). The Association of Fan Rights (THD), which is well known for its protest activities against the regulations about electronic entrance tickets for football matches in Turkey, has exhibited distinct and intellectual behavior (Cerrahoglu, 2014).

FATAB (whose founding president is the researcher of this publication) was the only fan organization invited to the first FARE seminar organized in London in November 2011. In this FARE seminar, Cerrahoglu and Eryaman presented a critical analysis of the current situation regarding discrimination in Turkish football.

The Approach of the Ministry of Youth and Sport to Fan Organizations in Turkey

The Congress of European Football Fans was organized in Turkey on July 13-15, 2012. The Turkish Football Federation (TFF), UEFA, and Metropolitan Municipality of Istanbul provided financial support to the organization. In addition to the Federation of All Football Fans and Union of Active Fans in Football, university student fan clubs like UNIFEB, UNIBJK, and UNIUltrAslan provided logistic and participation support. As preparation for the congress, Daniela Wurbs, coordinator of FSE, Necati Cerrahoglu, president of FATAB, and Seyhan Hasirci, academician from Germany, met with the Ministry of Youth and Sport to request participation and support from the ministry. Although the coordinator of FSE reminded that "till now all of the fan congresses had a start with the speeches of the Ministers of Sports of the related countries" and requested the continuation of the tradition, there was neither participation from the Ministry of Youth and Sport nor any information booth.

The workshop "Prevention of Violence and Disorder in Sports" was organized by the Ministry of Youth and Sport, Ministry of the Interior, and High Council of Judges and Prosecutors in Ankara on June 17-18, 2013. Suat Kılıç, Minister of Youth and Sport, Sadullah Ergin, Minister of Justice, and Muammer Güler, Minister of the Interior, participated. The following decisions were made in the workshop:

- 1- Electronic Entrance Tickets
- 2- Monitoring System
- 3- Banning for Life the Entrance of Hooligans to Football Matches

The police commissioner of Ankara, members of the High Council of Judges and Prosecutors, some presidents of federations, some presidents of football clubs, and around 80 judges and prosecutors joined in the workshop. No fan groups or representatives were invited to the meeting.

The Ministry of Youth and Sports has never found it necessary to accept the invitations to fan congresses or meetings. Moreover, the ministry prefers not to communicate with such organizations. The ministry invites only high-status justices and security officers and some presidents of federations and football clubs to the meetings in which important issues about fans are discussed. None of the representatives of fan groups has been invited to such meetings. After the change of the Minister of Youth and Sports, although all sides in sports were invited to the congress of 2014 in Antalya, again fan organizations and representatives were excluded. The ministry has a generally low opinion of fan organizations and does not find it necessary to accept their ideas for solutions. This is not related to the intellectuality of those groups; it is a result of the ministry's general approach. The fact that none of the academicians who study fan groups and fan culture has been invited demonstrates that the ministry has no policy on the topic in place. Attempts to solve problems associated with fans still involve taking security precautions and there is no study or policy on the UEFA's 10-point plan.

Case Examples of Hate Crimes in Turkish Football

- It is not uncommon at Diyarbakirspor games for fans from the other teams to shout slogans like "PKK [Kurdistan Workers' Party] out!" They imply that every supporter of the Diyarbakirspor is automatically a supporter of the PKK, a terrorist organization. Diyarbakirspor represents the biggest city in southeastern Turkey, and many ultra-nationalists consider the team to represent the Kurds and, by extension, the PKK.
- The animosity between Bursaspor and Diyarbakirspor fans started on September 26, 2009. On that game day, Bursaspor fans greeted Diyarbakirspor in Bursa with huge Turkish flags and banners that read, "We are Turks, we are all soldiers," and "Happy is he who calls himself a Turk." The incidents did not stop at the level of verbal abuse. In the 26th minute of the September 26 game, Bursaspor supporters broke off the plastic seats in the stands and threw them at Diyarbakirspor fans. Some Bursaspor fans even tried to jump over the fences to attack

the visiting team supporters. The brawl did not stop until police officers were placed between the two teams' supporters, but 10 Diyarbakirspor fans, including 1 woman, had already been injured.

- Not even the announcement from Diyarbakirspor Chairman Cetin Sumer that he would withdraw his team from the league woke up the federation administration, and it levied only a minor fine of just TL 100,000 on Bursaspor. The TFF has been reluctant to punish racist and discriminatory behavior in the past despite many examples of it, such as the Galatasaray fans who shouted anti-Semitic slogans at an Israeli player or Trabzonspor fans who wore white hats similar to the hat worn by the killer of Turkish-Armenian writer Hrant Dink. They were not punished, either.
- The next football game between Bursaspor and Diyarbakirspor for the Turkcell Super League was suspended at the 17th minute on March 6, 2010, when Diyarbakirspor fans began throwing foreign objects at Bursaspor athletes in Diyarbakir Stadium. At the 17th minute of the game, when Bursaspor gained a corner kick, fans threw objects at the player taking the corner kick and injured an assistant referee. The match official and assistant referees retreated to the locker room, suspending play. During the game, which began six minutes late because fans threw foreign objects behind the Bursaspor goal post, a journalist was also injured when an object hit him in the head. Officials, including Diyarbakirspor Club President Cetin Sumer and players for Diyarbakirspor, tried to prevent fans from throwing objects onto the field and at Bursaspor athletes. After cancellation of the game, police used tear gas to disperse Diyarbakirspor fans still engaging in disruptive behavior outside the stadium.
- It was a memorable event when Besiktas fans stood up for their French player, Pascal Nouma. One week after referee Ali Aydın referred to the French striker as "the black player," the Inonu Stadium was filled with banners that read, "Hepimiz zenciyiz," which means, "We are all black." The slogan quickly became a catchphrase in social life and was used to support anyone suffering from discrimination, most famously in protests of the assassination of the Armenian-Turkish journalist Hrant Dink. Banners reading, "We are all Armenians" in Turkish and Armenian were raised in the air during the rallies.
- Another debate sparked when Genclerbirligi coach Samet Aybaba made a notorious comment about his player, Abdel Zaher El Saka, "This country prefers an Arab over me."
- Most recently, Sivasspor's Israeli striker Pini Balili has been the subject of racially abusive remarks. During a game against Sivas, Galatasaray fans yelled "damn Israel" in their chants before cursing at Balili.
- Trabzonspor supporters threatened the Central Refereeing Committee, or MHK, Chairman Oguz Sarvan with the slogan, "Armenian Oguz, genocide for you!"
- Hooligan groups are well organized, have their own "leaders," and often consist of organized street fighters. These groups have a "racon" (code of conduct), which states that the intention must be to injure rather than kill and that a stab must be made below the waist. Other hooligans have fired firearms into the air to celebrate their team's victory, actions which have accidentally killed innocent people watching the celebrations from their balconies.
- Before Galatasaray's semi-final UEFA Cup match with Leeds United A.F.C. in 2000, two Leeds fans, Christopher Loftus and Kevin Speight, were stabbed to death in Istanbul following street fights between Turkish and British hooligans. The UEFA allowed the game to proceed and Galatasaray won 2-0. Leeds complained because home fans jeered while a message of condolence was read for the victims. Galatasaray's players refused to wear black arm bands. The Leeds chairman at the time, Peter Ridsdale, accused Galatasaray of "showing a lack of respect." He also revealed that his teams' players had received death threats before the match.

- Ali Umit Demir was arrested and sentenced to 15 years' imprisonment for the stabbing, but the sentence was reduced to 5 years on the basis of heavy provocation, while five others were given lesser sentences of under four months. The families of those accused of attacking with knives defended the actions and approved of their children punishing the "rude British people." Galatasaray fans were banned from traveling to the return match in an effort to avoid further clashes between fans, although there were reports of attacks by Leeds fans on Turkish television crews and the police. However, the assistant chief constable in charge of policing the game believed that the number of arrests was "no worse than a normal high category game." Hakan Sukur was hit with projectiles from Leeds United supporters and the Galatasaray team bus was stoned after driving through an underpass.
- A lawsuit was filed against the Turkish national team captain Emre Belozoglu, with the allegation that he made racist comments toward Didi Zokora during the match between Fenerbahce and Trabzonspor on April 15, 2012, and two years' imprisonment was demanded. Belozoglu was sentenced to two months and 15 days in prison. After the decision, Zokora's lawyer said Emre Belozoglu was the first football player in Turkey to be penalized for racist behavior.

Conclusion

As seen from the case examples provided above, although it is not very common, the existence of racism in Turkey is a reality. Thus, it is necessary to tackle this problem.

Although the 10-Point Action Plan was known to football clubs, no activities or campaigns to fight against hate crimes in sport, such as racism, discrimination, humiliation, xenophobia, and Islamophobia, have been carried out (Cerrahoğlu, 2013).

The European Union gives significant importance to the matter; however, its calls to address the problem have been ignored by Turkey, which is candidate for EU membership, and this approach may cause social problems. Another interesting point is that the topic has not received the necessary interest from the sports media.

The Ministry of Youth and Sports and the Football Association have shown no interest in the 10-Point Action Plan and the football fan associations have not paid attention to the subject, despite its being a hot topic in Europe. These perspectives have been studied in the scientific research and the results are itemized and presented below:

1. Fan associations are not aware of their power and dynamics.
1. Being a fan is seen as an opportunity for income and living expenses.
2. There is a perception that being a fan is limited to the interest of the team.
3. Fan groups have been manipulated by the former club managers.
4. No intellectuals with vision take part in fan associations.
5. People with an intellectual background are not interested in fan clubs.
6. If a problem arises with the fans, police measures are primarily considered the solution.
7. If there is a problem, the enforcement of Law No. 6222 has only been applied to the fans.
8. The Ministry of Sports and the Turkish Football Federation do not give the necessary importance to the fans.
9. The Ministry of Youth and Sports does not have any project or plan for the fans.

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Miscellany

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