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“Said Nursi’s Notion of ‘Sacred Science’: Its Function and Application in Hizmet High School Education”

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Abstract

This paper explores the teaching of natural science subjects in high schools associated with the Gülen-Hizmet movement in Turkey. It focuses on the apparent reconciliation of scientific learning in a pervasive, albeit unofficial, Sunni Islamic religious culture. The framework for such an accommodation is found in the teachings of Fethullah Gülen and his predecessor, Said Nursi. Following Nursi, Gülen encourages scientific pursuit, and intellectual knowledge in general, as a pious and spiritually meritorious act. Drawing on fieldwork conducted at two Hizmet-affiliated high schools in Turkey, this article explores the “sanctification” of science and learning in the Gülen Movement by highlighting the principle of fedakarlık (self-sacrifice), as the primary motivation of the teaching staff. Focusing also on the schools’ highly disciplined and competitive learning environments (as exemplified in preparations for the prestigious International Science Olympiads), the article suggests that although teacher commitment and prestigious competitive awards bolster the Hizmet schools’ market competitiveness, they fail in actually producing students who pursue careers in natural science fields. By contrast, this article concludes that the movement’s engagement with science, at least at present, is less interested in furthering scientific inquiry than it is in equipping what Gülen has called a ‘Golden Generation’ with the tools it needs to compete with secularist rivals in Turkey.

Keywords Said Nursi; Hizmet movement; education; Islam; science

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Humans are the ones who have been granted the privilege to rule and make use of creation; and humans are the ones who reveal all the aspects of the truth behind natural phenomena, offering these to the Creator. Humans sense and discern the relationship between humanity, the universe and the Creator – a relationship which leads them to knowledge.¹

Generally, when people in Turkey hear the term ‘Science Olympiads,’ it is the Hizmet schools that come to mind.²

One of the defining features of the Gülen-Hizmet movement is its prolific activity in the field of private education. Beginning in Turkey in the early 1980s, this education movement has since become a global phenomenon with primary, middle, and high schools in well over a hundred countries.³ Shaped by the philosophy of science expounded in Said Nursi’s *Risale-i Nur*, the schools are well known for offering competitive mathematics and science-focused curricula within an unofficial religious culture shaped

¹ M. Fethullah Gülen. *Toward a Global Civilization of Love and Tolerance* (New Jersey: The Light Inc. and Işık Yayınları, 2006), p. 116

² Author’s interview with a math teacher and Science Olympiad co-ordinator, June 2013.

³ Official statistics are difficult to obtain because the schools do not officially affiliate themselves with the Hizmet movement. According to organisers of the “Turkish Language Olympics,” (Hizmet event bringing together students from the movement’s schools around the world to compete in Turkish language skills), Hizmet schools are present in 140 different countries.

by the precepts of conservative Sunni Islam (Agai 2002). The schools' emphasis on teaching the natural sciences is demonstrated annually through successes at competitions called "International Science Olympiads," and all major Hizmet high schools in Turkey boast an array of Olympiad medal-winning alumni.⁴

Prestigious awards such as these, together with high rates of success in the national university entrance exams⁵ make the Hizmet schools competitive players in the Turkish private education market (Mandaville 2011). The schools are predominantly, although not exclusively, favored by families of a pious religious persuasion who support the conservative values promoted in the schools. A significant number of pupils also study with scholarships, and may be attracted to the schools for no other reason than their strong academic reputations, particularly in scientific subjects. Accordingly, not all students are necessarily of the same conservative religious orientation, and indeed not all come from families that are affiliated with the Hizmet movement. This element of heterogeneity in the social and religious profiles of the student population reflects the high standing of the Hizmet educational product and its competitive success in Turkey more widely.⁶

The emphasis on pedagogical excellence, particularly in the natural sciences, at Hizmet schools raises interesting questions surrounding the popular reception of modern science in the Muslim world more generally. Broadly speaking, Muslim-majority countries are known to lag behind their non-Muslim counterparts in terms of scientific progress, with lower levels of investment in public scientific research and lower standards in math and science education.⁷ The claims of modern science, and particularly of evolutionary biology, appear to pose a direct challenge to the Qur'anic narrative and its authoritative status as divine revelation. The search for an adequate philosophical reconciliation between the two fields has been a central preoccupation of reformist Muslim thinkers since the 19th century, and continues to be pursued (Golshani 2003, Guessoum 2011, Nasr 1993) as well as contested (Edis 2007) today.

In this paper, we begin by locating the philosophical framework for a distinctive Hizmet pedagogy of science in the writings of Said Nursi (1877- 1960) that has subsequently been adopted and developed by Fethullah Gülen. In the light of this framework and based on the findings of on-going field research among two Hizmet high school communities in Turkey,⁸ we explore patterns in teaching and learning in these schools, particularly in the field of natural science. Based on our observations, we suggest that two characteristics in particular stand out as being peculiar to the Hizmet educational experience: 1) The principle of fedakarlık (self-sacrifice), which motivates the teaching staff to invest substantially in their students. 2) A highly disciplined and competitive learning environment associated with

⁴ The three 'big' Turkish Hizmet high schools are also the oldest ones: Yamanlar Koleji in Izmir, Fatih Koleji in Istanbul and Samanyolu Lisesi in Ankara. See, for example, <http://www.fatihkoleji.com/olimpiyatlar.asp?olimpiyat=uluslararası> (Accessed, July 2, 2013)

⁵ The LYS (Lisans Yerleştirme Sınavı, Degree Preparation Exam) is a nationally administered and highly competitive exam used to determine university entrance.

⁶ See Hendrick (2013: 89-122) for a discussion of the different "tiers" of allegiance and involvement in Hizmet services, and the importance of the educational product having a high market value.

⁷ In a comparative study of science achievement amongst high school students in 35 different countries (TIMSS, 2007), Kazakhstan is the only country with a majority Muslim population in the top 25. In the bottom 10 and falling well below the international scale average are Iran, Algeria, Kuwait, Tunisia, Morocco, Qatar and Yemen. See 'Trends in International Math and Science Study', 2007 at http://timss.bc.edu/timss2007/PDF/T07_S_IR_Chapter1.pdf (Accessed, July 5, 2013).

⁸ We acknowledge that the Hizmet education movement is now global. Our study, however, is necessarily limited and focused on the situation of the schools in Turkey. For analyses of international schools, see Agai (2002), Balcı (2003), and Pandya and Gallagher (Eds.) (2012).

preparations for the International Science Olympiads. Although teacher commitment and prestigious competitive awards certainly bolster the marketability of the Hizmet schools, we question the feasibility of these schools raising a generation of students who are intellectually engaged with the natural sciences, and who are thus in a position to make professional contributions to that field. An alternative scenario, we suggest, is that scientific learning is pursued rather pragmatically, primarily as a reflection of the movement's interest in equipping what Gülen has called a "Golden Generation" (altın nesil) of pious Muslims to compete for professional and social success in Turkey and abroad.

Said Nursi and Science⁹

The philosophical foundations of the Hizmet movement are located in the thought of the Kurdish-Turkish thinker, Said Nursi, and particularly the text of his fourteen-volume *Risale-i Nur Külliyyatı* (Epistle of Light Collection). The *Risale* is read intensively on a daily basis in the movement's student dormitories and *ışık evleri* ("houses of light"), and is the central text used to characterize the movement as a whole (Yavuz 2013: 100-106). Written in part before, and in part during, the early decades of the Turkish Republic (1910- 1950), the *Risale* clearly reflects Nursi's central concern: the revitalization of religious faith in Turkish society in an era of rapid modernization, industrialization, and secularization. Keenly aware of the twin threats of scientism and atheism, the *Risale* is a work of Qur'anic exegesis (tafsir), and each volume provides a systematic rebuttal, based on concepts and directives from the Qur'an, of one aspect of the epistemological challenge posed to Islamic faith in the nineteenth and early twentieth century (Turner and Horkuc 2009). Accordingly, one of its central themes is an attempt to find an adequate philosophical reconciliation between Islam and modern science. In his approach, Nursi shares some themes with other modernist Muslim thinkers of his day, while at the same time, positing a distinctive philosophy of Islamic science that is uniquely Nursian. At the foundation of Nursian thought is a belief in the inherent rationality of Islam and its suitability to modernity, an argument also adopted by Muhammad Iqbal, Sayyid Ahmad Khan, Muhammad Abduh and others in the modernist-reformist tradition. He emphasizes the "rational proofs" of Islam, as embodied in the Qur'anic text, in his "Damascus Sermon" of 1910/11:

We Muslims, who are students of the Qur'an, follow proof; we approach the truths of belief through reason, thought and our hearts. We do not abandon proof in favour of blind obedience and imitation of the clergy like some adherents of other religions. Therefore, in the future when reason, science and technology prevail, that will surely be the time that the Qur'an will gain ascendancy, which relies on rational proofs and invites the reader to confirm its pronouncements. (Said Nursi quoted in Vahide 2005: 96)

Rather than being threatened by reason and science, the Qur'an is held to be the epitome of rationality itself. According to Nursi, far from calling its authenticity into doubt, modern scientific enquiry will, in the near future, actively serve Islam by proving the veracity of the Qur'anic text and confirming its divine source.

In the *Risale*, Nursi calls "rational proofs" into the service of Islam and proposes a thorough and distinctive theology of Islamic science. This theology is based on his notion of what is identified as the "Book of Creation" (*kitab-i kainat*), by which he means the visible, "created" universe, which he understands to have a primary religious function as a divine "text" alongside the Qur'an's written word. Nursi employs a Sufi idiom to express this idea, drawing especially on the ideas of Ibn Arabi, in which God is said to have created the cosmos (and humankind) as a kind of "mirror" through which his own divine attributes are seen and manifested back to Him. In Nursi's vision, it is the duty of

⁹ For a detailed analysis of Said Nursi's approach to science, see Mardin (1989)

Muslims to “read” (or study) the natural world in order to apprehend the attributes of God depicted therein:

Nursi [...] devotes huge swathes of the Risale to eloquent expositions of the ‘book of Creation’ - kitab-i kainat – in which all of God’s ‘words’ – expressions of His attributes – are written for all to read. Man’s understanding of God is thus posited as experiential, for everyone is tasked with the interpretation of the same cosmic text, in which the attributes of perfection are made manifest for all to ponder [...] For Nursi, it is only by pondering the countless divine names made manifest in the created realm, with their seemingly numberless permutations and gradations, that man, using his own receptivity to the attributes of perfection, is able to reach the truth of belief and fulfil his true destiny, which is to act as a conscious mirror for the reflection of his Creator. (Turner and Horkuc 2009: 55)

A central distinction in the Risale that underpins the notion of kitab-i kainat is drawn between the nominal (mana-yi ismi) and indicative (mana-yi harfi) meaning of material things. In Nursi’s view, the major failing of positivist materialism – which he refers to as ‘philosophy’ – is its reliance on the “nominal” meaning of things and its lack of consideration of their “indicative” meaning. Nursi’s metaphysics is based on a harfi view of the natural world, which sees material objects as pointing to the Creator and as having no intrinsic meaning of their own:

Sometimes they attach a “scientific” name to a most profound, unknowable, and significant reality that has countless purposes in each of its innumerable aspects. They think that doing so means that its entire nature has been understood and explained. But in reality, they only have made it commonplace and stripped it of all-purpose, wisdom and meaning. (Nursi, The Words, p. 189)

By positing a natural and unbroken continuum between material and spiritual realms, Nursi reflects a worldview that has a strong precedent in the wider Islamic tradition (Vahide in Abu-Rabi 2008:2). From this epistemological angle, every aspect of the world and human experience can be considered to inhabit the realm of the sacred. In the Risale, it is specifically the sanctity of science that is stressed according to such a worldview, and “true” scientific enquiry is relocated within an Islamic spiritual paradigm. Accordingly, Nursi’s proposal is a wholesale reinterpretation of the ontological function of science, whereby the materialist threat is defused, and “Nature as a theophany of God and its study by science [...] acquire[s] a sacred quality.” (Mardin 1989: 216).

The influence of Sufism on Nursi in the Risale is somewhat ambiguous. The language and precepts of the text are clearly influenced by Sufism, yet it is important to note that Nursi was clear to distance himself from Anatolia’s mystical tradition. He rejected the differentiation between batini and zahiri realities, or between mystical knowledge and the Shari’ah, which is central to Sufi thought. Furthermore, he considered the practice of Sufism unsuited to the modern age and thus as a hindrance to the necessarily urgent mobilization of Muslims.¹⁰ Rather, Nursi employed the idiom of Sufi thought, which was (and is) powerfully familiar to his readership of pious Anatolian Muslims, as an important part of his “sanctification” of science and the natural world.

By re-framing science in Islamic terms, Nursi encouraged his followers to actively engage with modern fields of inquiry. Besides providing a philosophical justification for this endeavor, he also proposed a series of practical reforms in the field of education. Most notably, Nursi proposed the establishment of a new style of university in the eastern city of Van (Vahide 2005). This university, to be called the

¹⁰ Various Sufi sheikhs had an influence on Nursi, but he declined to affiliate himself with any particular order. His priority was to see Muslims return to the basic pillars of their faith and he considered Sufism unnecessary in this regard. He taught that, “Many people enter paradise without following the Sufi path, but none enter it without belief. It is therefore the time to work for belief” (Vahide 2005: 223).

Medresetü'z-Zehra (Eastern University), would combine its teaching to include both Islamic and modern sciences, and as such was proposed as an alternative to the secularization of the national education system being carried out in the early years of the Republic. The site in Van was significant, being in the east of Anatolia and closer to the heartlands of traditional Islamic learning than to either Istanbul or Ankara. The project met, however, with sustained opposition from the state and was never realized. On his death in 1960, Nursi left behind in the *Risale* a theoretical framework for the study of science within a religious framework, but no institutional context in which to put this study into practice. It is from this juncture that we move on to explore the present-day schools inspired by Fethullah Gülen, which, following closely in the Nursian intellectual tradition, appear to offer just such a context.

Ethnographic Sites

In Turkey and elsewhere, Hizmet schools have achieved a reputation for excellence in the field of science education, and can be ranked amongst the market leaders in private education provision in Turkey today.¹¹ The present study examines Hizmet's success in pedagogy by exploring the internal dynamics of its educational culture. Said Nursi's theology of science is presented as a framework for interpreting the enactment of scientific learning within an "unofficial" Islamic cultural milieu. With this question in mind, research was carried out between March and June 2013 at two Hizmet educational institutions (School A and School B), each located in a different large city in the west of Turkey.¹² Each institution was composed of a small, local group of affiliated schools, and includes a majority girls' high school, a majority boys' high school, and various mixed-gender primary-middle schools. Research was conducted at all three school-levels, at both gender-specific schools at School A, and at the majority-boys' high school at School B.

A full discussion of the dynamics surrounding gender roles within the Hizmet movement is beyond the scope of this article,¹³ yet a brief comment is necessary in order to contextualize the research and its constraints. On account of the strict gender segregation practiced by the movement, the most fruitful research was – as expected – carried out in the majority-girls' high school at School A. It was much easier here for the female researcher to integrate informally into the (almost) all-female staff and student body, and also to participate in social and religious activities. Although male teachers, students, and administrators were helpful in answering particular questions (particularly on the subject of the Science Olympiads), they did not generally relax and open up in discussion in the same way as their female counterparts. Furthermore, the researcher was unable to casually observe any educational or social activities in the boys' schools, and her visits were limited to monitored interviews and escorted tours.

Full gender segregation in high school is not permitted by Turkish law, which has required since the 1980s that high schools be mixed. The Hizmet schools studied met this legal requirement by including a very small number of girls in a majority boys' high school, and vice versa. The teaching staff was generally, although not exclusively, male at the majority-boys' schools and female at the majority-girls'. The preference for single-sex education was explained in pedagogical rather than religious

¹¹ The influence of external factors that were favorable to their emergence, such as Gülen's support for the 1980 military coup and subsequent developments in Turkish economic and foreign policy during the 80s and 90s, has been noted in the literature (Ağai 2002, Balcı 2003, Hendrick 2013, 2009; Turam 2007).

¹² Tee carried out the research. The first school community was selected for research because of a personal contact; the second was selected by a representative of the Journalists' and Writers' Foundation (*Gazeteciler ve Yazarlar Vafkı*, or GYV) who helpfully facilitated research in that city.

¹³ On women and gender issues in the movement, see Arslan (2009). Özdalga (2003), Pandya and Gallagher (eds.) (2012), and Turam 2007).

terms; that is, young people were widely known and proven to attain greater academic success when educated in single-sex environments. However, the de facto gender segregation in the Hizmet schools also played a crucial role in facilitating their distinctive educational culture. This culture was characterized at least in part by the following two features: firstly, a pious religious ethic and conservative conception of Islamic morality (which demanded gender segregation); secondly, close inter-personal relationships - in informal social networks incorporating teachers, students and parents - and unusually high teacher commitment (which was facilitated by gender segregation). These characteristics of Hizmet educational culture, and their significance as regards the cultivation of a Nursian religious worldview, is explored below.

Teaching as a Holy Vocation: Teachers as “Guides” (mürşid)

The commitment and hard work of teachers in Hizmet schools is a significant factor behind their academic success. Teachers are willing to work harder and for longer hours than their counterparts in other schools, and are not paid any more to do so. This willingness is referred to internally in the movement as *fedakarlık* (self-sacrifice), and is highly prized and encouraged. Sociologically, the Weberian notion of “inner worldly asceticism” provides a framework for understanding how pious religious convictions might motivate Hizmet followers to exert themselves in pursuit of apparently “worldly” activities for little personal gain (Agai 2002, Özdalga 2000, Yavuz 2013).

In girls’ school at School A, the majority of teachers was religiously observant and projected a pious Islamic identity. This piety was expressed in various ways, namely their choice of a strict *tesettür* style of clothing,¹⁴ their regular visits to the designated prayer room to perform *namaz* throughout the course of the school day, and the preference for teaching in an all-female environment because it was “more comfortable” (*daha rahat*) without the presence of men. The piety of the staff was generally more uniform than that of the students. That is to say, not all of the girls adopted the *tesettür* dress code outside of school, and not all performed regular prayers. The extent to which the religious piety of the teachers influenced their students’ own religious observance, and shaped them into future transmitters of the Nursian-Gülenist worldview, was an important question that we decided deserved a separate study. Notwithstanding, the teachers at the schools framed their commitment to teaching in religious terms, with reference to the books and sermons of Fethullah Gülen. As a central principle in Gülen’s teachings, the concept of *temsil* (witnessing to one’s faith through action rather than words) was one to which many of the teachers in this study made reference when talking about their responsibilities as teachers.¹⁵

Gülen regards teaching as a kind of sacred duty, an act of religious piety in the service of God (Agai 2002, Ünal and Williams 2000). While the pursuit of religious knowledge has long had a sacred function in the Islamic tradition (Hefner and Zaman, 2007), Gülen re-interprets this tradition to “sanctify” and legitimize the teaching and learning of non-sacred subjects in a secular environment. In this way, he encourages his followers to teach as a kind of religious service (*hizmet*) or vocation, stating that:

Education through learning and a commendable way of life is a sublime duty that manifests the Divine name Rabb (Upbringer and Sustainer). By fulfilling it, we attain the rank of true humanity and become a beneficial element of society. [...] In essence, a school is a kind of place of worship whose ‘holy people’ are teachers. (Gülen quoted in Ünal and Williams 2000: 308 and 312)

¹⁴ 4 *Tesettür* is a conservative style of women’s Islamic dress in Turkey. Headscarves are mostly removed inside the school building

¹⁵ For a discussion of the Hizmet schools’ missionary function in Central Asia, see Balçı (2003); on the internal dynamics of the schools and the notion of teachers as “models” see Agai (2002).

Teachers are therefore highly motivated to carry out their duties as diligently as possible, seeing their professional role as having sacred connotations. Furthermore, teachers locate additional spiritual meaning in their professional vocation, which is the provision of guidance (irşad) to their students. Gülen praises the giving of guidance, which can be understood as showing a believer the 'right path', declaring, "if there is one thing that is most enduring in this world and the most meritorious in the Hereafter, it is guidance" (Gülen 2004, Chapter 23). A familiar concept in the Sufi tradition, Gülen's understanding of guidance is unusual in that he does not see it as the preserve of a sheikh (mürşid) or religious leader, but something to which "ordinary" Muslims can aspire; furthermore, reflecting the broad principles of the Nursian intellectual tradition, Gülen's view of guidance is that it ought to incorporate wisdom on scientific as well as religious topics:

A guide is a wise one equipped with the necessary knowledge of both religious and certain secular sciences to discuss different subjects with an audience and present satisfactory solutions to their problems (Gülen 2004, Chapter 23, "Irshad and Murshid").

Hizmet schools have been extremely careful to adhere to secular legal requirements in Turkey, in order to avoid closure.¹⁶ Consequently, teachers wishing to be mürşids in the manner described above looked beyond the limitations of the timetabled school day, and interacted with students in their free time and in "neutral" spaces. Optional, teacher-led reading groups focusing on the Risale of Said Nursi, as well as the books of Gülen, were held after school at the students' dormitory about a half-hour drive away from the school campus. The teachers also interacted socially with their students and saw a great deal of one another in a variety of informal social situations. For example, many teachers at the girls' school in School A explained that they regularly invited their class students to their homes for meals at weekends, as exemplified by this conversation with a group of 9th grade (15 year old) students:

CT: Are you happy with this school?

Girls: Yes, very happy.

CT: What do you like about it most?

Girls: Our teachers. They are very concerned with us (çok ilgileniyorlar) and give us a lot of help with our lessons. They're so much better than at state schools. In state schools, they just watch for the clock to strike four so that they can leave...

CT: Do you see your teacher outside of the school?

Girls: Yes, often! We visit [our class teacher] at her home. She often invites us over for breakfast at the weekend. In Ramadan, we even went once for sahur...¹⁷

It was common also for teachers to visit individual students in their own homes, and to cultivate a social relationship with parents as well. In this way, normal professional boundaries were blurred and

¹⁶ Provision for religious instruction in the Turkish national secondary curriculum is limited to one hour per week. Teachers reported that the schools were visited unannounced on a fairly regular basis by inspectors from the Ministry of Education, who searched for religious materials and who checked that additional religious activities were not being carried out on the school premises.

¹⁷ Conversation between Caroline Tee and girls in a 9th grade chemistry class, girls' school in School A, May 22, 2013. Sahur is the early-morning meal eaten shortly before sunrise in Ramadan. It is common to share iftar (the meal eaten at sunset) with friends and neighbors in Turkey, but visiting someone's house to share sahur is unusual. The girls found this quite amusing and reported it enthusiastically.

a network of informal, family-wide relationships was forged, based for the most part on a common interpretation of the pious Islamic lifestyle.¹⁸

The way in which students interacted with the teaching staff was often more familial than it was professional, with teachers having an attitude in some ways more reminiscent of a “big sister” (abla) than a distant authority figure. Besides reciprocal home visits, this intimacy was cultivated when teachers would accompany students on social excursions such as trips to the cinema or to local shopping malls. At an organized school picnic, teachers and students mingled freely together socially. Teachers sat with their students, chatted and joked along with them, ate their meals with them, and even joined in playing certain games, such as skipping. Furthermore, however informally, it was clear that religious instruction was taking place; groups of students and teachers engaged intermittently in reading the Qur’an together, and others performed namaz throughout the course of the afternoon on mats laid out in the shade of some trees.

This informal, extra-curricular, personal and religious mentoring that teachers offered to students was exemplary of how the teachings of Said Nursi and Fethullah Gülen were transmitted and how a “Nursian spiritual worldview” was cultivated. An important component of this worldview was the proposed reconciliation of science and religious beliefs. Thus, while the secular science was taught in Hizmet classrooms, a broader philosophical framework in which science was framed in Islamic terms was nurtured outside the classroom, in private time, in neutral space, and in the context of close personal relationships.

Science and the “Golden Generation”

In Gülenist thought, education is the vehicle for training what is often referred to as a ‘Golden Generation’ of Muslims who embody Islamic piety but who are also educated to high scientific standards. There is a sense of urgency surrounding Gülen’s teaching on this subject. He presents a scenario in which the modern world is in a crisis of moral degeneration, brought on by widespread religious decline.¹⁹ The Muslim believers of the new generation, and the teachers investing in them, represent the solution to the crisis:

The generations of hope, which are, with respect to the present, the representatives of science, knowledge, faith, morality, and art, are also the architects of the spirits of the people who will succeed us. They will pour out to the needy hearts the purest inspirations of their hearts, which are nourished in the higher realms and they will bring forth the newest formations in all sections of society. The inauspiciousness and waste, the insanity, obsessions, and delirium of successive generations in our near past occurred, to a great extent, because they had not met such a generation of hope (Gülen 2005a, Chapter 19).

The “representatives of science” play an important part in Gülen’s redemptive vision of a “generation of hope.” Indeed, for Gülen, the realm of modern science is an important component of the crisis that he imagines. Like Said Nursi, Gülen teaches that science was corrupted by its development in isolation from religion in post-Enlightenment Europe. He blames the Church for this, for having failed to prevent the bifurcation in European society that resulted from the implementation of secularism (Gülen in

¹⁸ Such informal networks play a crucial role in the functioning of the Hizmet movement as a whole. See Hendrick (2013, 2009)

¹⁹ According to Weber (1947), the emergence of charismatic authority figures is contingent partly upon there being a sense of crisis (Klaus 2006). Gülen’s “creation” of a sense of worldwide crisis, brought about by unbelief and moral degeneration, provides a context for his emergence as a charismatic leader. For more on Gülen’s charisma, see Hendrick 2013: 78-88.

Unal and Williams 2000: 313-4). The result, he contends, is that “the application of science or technology by an irresponsible, selfish minority has engendered more disasters than good” (Gülen 2005b: 150). Gülen therefore exhorts his followers to actively engage with science, because it is a primary area of confrontation in the global crisis scenario that he envisions. The question of what this active engagement with science resembles in practice, however, deserves further scrutiny.

The Science Olympiads

Hizmet schools have been competing at the ‘Science Olympiads’²⁰ since the early 1990s, and their success in these competitions forms an important part of their collective identity. Olympiads take place on a national and international level, with the winners of national events representing Turkey at more prestigious International Olympiads. Turkey has regularly sent teams to compete in each of the five different International Olympiads (i.e. math, physics, chemistry, biology, computer science) since 1993.²¹ Before this time, they received relatively little domestic interest. Indeed, the increase of interest and participation in these events in the early-90s in Turkey was concurrent with the emergence of the first Hizmet schools in Central Asia and the Balkans. To this day, although the selection and training of the national team is overseen by the state Türkiye Bilimsel ve Teknolojik Araştırma Kurumu (Foundation for Scientific and Technological Research of Turkey, TÜBİTAK), high numbers of Hizmet students are selected and participate every year.²² Accordingly, a popular internal narrative of the movement, voiced especially by school science teachers, is that the Hizmet schools have contributed to an overall improvement in standards of science education and public engagement with science in Turkey over the past twenty years.

While this narrative is very much in line with the movement’s broader aspiration to demonstrate conservative Islam’s successful engagement with modern science, this claim is in need of further investigation. This is because a major motivation behind the Hizmet’s success in the Science Olympiads appears to be their highly competitive ethos and intensive work ethic. The Olympiads are attractive because of the prestigious rewards and incentives that the Turkish education system awards to successful students. Furthermore, a high degree of competitiveness characterizes a rigorous student selection process and intensive tutoring methods are used in the Hizmet system to train Olympiad candidates. Accordingly, it seems that their desire to successfully compete is an essential component to understanding Hizmet’s interest in these Olympiads, and is telling of its engagement in the field of science more broadly.

There are financial rewards and new academic opportunities offered to students who win a medal at the International Science Olympiads. Besides receiving a cash prize from TÜBİTAK, each medal winner has a chance of acceptance to a prestigious university (private or state) in Turkey because of an automatic addition of points to their score in the LYS exam (thirty extra points are added for winning a bronze medal, forty for a silver, and fifty for a gold). Medal winners are, furthermore, granted automatic admission to a degree program specialist (they cannot choose any subject at degree level; rather only the one they have won a medal in) at any state university. If a student chooses to accept

²⁰ Science Olympiads originated in the 1930s in the Soviet Union in an effort to raise the country’s standards and international competitiveness in the fields of science and technology. Competitions developed in Eastern Bloc countries during subsequent decades, with the first International Mathematics Olympiad held in Romania in 1959. Western nations began to take part in the 1970s, but the events are still largely dominated by the ex-Soviet bloc countries and by China. See Arslan (2009), Appendix 1, and Kocabaş (2006), Appendix A.

²¹ http://www.tubitak.gov.tr/sites/default/files/2203_dereceler_istatistikler.pdf (Accessed, July 8, 2013).

²² For example, Fatih Koleji in Istanbul’s website lists 67 student medal-winners in the International Science Olympiads between 1992 and 2013. See <http://www.fatihkoleji.com/olimpiyatlar.asp?olimpiyat=uluslararası> (Accessed, July 8, 2013).

this opportunity, s/he is also awarded a full state scholarship for the duration of his/her undergraduate studies. Success in the Science Olympiads, therefore, offers gifted students an alternative way to directly negotiate a place for him or herself at Turkey's top universities, for which competition is extremely high. Moreover, schools that are able to boast medal-winning alumni also benefit from associated prestige, and frequently reference their successes to increase their competitiveness in the private education market.²³

The success of Hizmet schools in general, and of students from these schools at the Science Olympiads in particular, is due at least in part to their high academic entrance requirements and their strategy of targeted recruitment. Schools focus on recruiting able students, which is especially visible during the early selection of potential Olympiad candidates. Starting in the last year of primary school, schools target students who have demonstrated academic potential and an ability to perform well on exams. Capable students are offered scholarships and tutored intensively throughout middle school for entrance to the national junior math Olympiad administered by TÜBİTAK.²⁴ Medal-winners subsequently progress (again, with scholarships) to a high school that is affiliated to the same local Hizmet group as the primary and middle school. The teacher responsible for coordinating the Science Olympiads at the boys' high school in School A described the process of targeted recruitment of students with the potential to win medals:

There is a national exam every year, which 5th graders sit before they start middle school. We give the top sixty students in our city medals (gold, silver and bronze), and we invite them to come for lessons at our school for one month over the summer. We select the students we want to take, a decision based not just on their academic ability but also on their character, and we offer them scholarships. We also check the exam results for the primary schools across the province, and travel to different schools to offer the best students scholarships. So these are the two ways in which we find our students. Then, in the 6th and 7th grades, we teach these students the high school math curriculum, and in the 8th grade we start teaching them how to answer National Math Olympiad questions. If they are good, we teach them material from the International Math Olympiad. TÜBİTAK organizes the National Math Olympiad for 8th graders, and we enter our students. Then, we accept the top thirty [of them] into our high school without requiring them to sit the entrance exam. So you see, this is how our primary school supports our high school (Field Interview at the boys' school at School A, April 2013).

It is clear that the school not only pursues a very pro-active policy of attracting the best students, but it also trains them in competition skills from an early stage. The culture of medal winning is introduced in the 5th grade and remains a constant motivation thereafter for students studying for the Olympiads. As the school curriculum diversifies, students choose which branch of science they want to continue in preparation for the Olympiads. Different schools are stronger in different areas. For example, Yamanlar in Izmir has a reputation for success in physics, and Samanyolu in Ankara is particularly successful in biology. Among the schools studied, the boys' school at School A had a math and chemistry focus, and the boys' school of School B a computer science and chemistry focus. The girls' school at School A had yet to establish any specialty, as this was their first year entering any students in the Science Olympiads.²⁵ Student specialties are dependent in large part on the expertise of the

²³ See the website of any major Hizmet high school in Turkey, all of which include a prominent section listing their successes in the Science Olympiads.

²⁴ Math is the only branch in which an Olympiad is organized at the national level for middle school students. National Olympiads are organized in all five branches for high school students.

²⁵ It was not possible to visit the girls' high school at School B, but their website shows that it is active in the International Science Olympiads, where one (female) student was recently selected for the Turkish national team in math. While the research at School A suggested that substantially more investment was made in

science staff at any one school, and upon its ability to tutor students at a high level. The demands of the Olympiads are much greater than the country's standard science curriculum, and teachers consider the level of study to be more commensurate with university undergraduate level.

Both student and teacher commitment were extremely high in preparation for the Olympiads. Students were required to work for ten hours every day in preparation for the competition, in addition to keeping up with the rest of their classes. At School B, Olympiad students were encouraged to board in school dormitories even if their families lived locally, so as to enable them to focus on their studies more intensively and with fewer distractions. Dormitory accommodation was offered free of charge by the school to these students. Students were also expected to attend intensive study camps during the winter mid-semester break and during the long summer holiday, thus forfeiting the normal holidays that non-Olympiad students enjoy. The dedication of Hizmet teachers was vital for the success of these camps, where they worked as unpaid volunteers.

As a further motivation, recent school alumni who previously won medals may return to a school or attend a summer camp to offer their services as tutors.²⁶ These alumni are often now studying at prestigious universities, and provide a powerful source of encouragement and inspiration to younger students who seek to replicate their success. This is evident in the following extract from a conversation with Burak,²⁷ a 10th grade Olympiad student at School B:

Burak: I'm an Olympiad student and I'm preparing for computer science. It's hard work and we study without breaks, but of course I want to win a medal. I want to study computer engineering at [a prestigious private university in the same city].

CT: Why do you want to go to that university especially?

Burak: A student who came to this school won a bronze medal at the Olympiads, in computer science, and he is now studying in the computer engineering department at [the same university]. He comes and helps us at the camps, and gives us advice on how to study.²⁸

The older student's success was clearly an important motivation for Burak, who was eager also to win a medal and a place at the same prestigious university. Burak had not merely heard second-hand reports of the older student's success, but had benefited from personal tutoring and mentoring from him. In this way, Hizmet schools harness the successes of their alumni to maximize the potential of the next generation of Olympiad competitors.

Hizmet schools thus have a comprehensive strategy for succeeding in the Science Olympiads, and invest a considerable amount of time, money, and human resources to this end. For students entering the Olympiads from the state sector, and even from other private schools, comparable specialist training and support is not available. The high intensity of Hizmet Olympiad training is facilitated primarily by the willingness of teachers to spend considerable extra time tutoring students outside of school hours and during school holidays. This is another instance of fedakarlık in Hizmet pedagogy.

training male than female students for the Olympiads, it would be premature to draw any far-reaching conclusions based on one case study. Arslan, however, also finds evidence of gender inequalities in the way Olympiad students are taught in Hizmet schools (Arslan 2009: 455).

²⁶ Alumni networks play an important role in the internal organization of the Hizmet movement. Schools stay in close contact with their graduates, facilitating regular reunions and meetings. The inter-personal connections that are fostered and maintained in this way characterize the many other activities with which the Hizmet movement is involved (Hendrick 2013).

²⁷ The student's name has been changed to preserve anonymity.

²⁸ Fieldwork interview, boys' school in School B, June 2013.

State-school teachers can attend a two-week summer training run by TÜBİTAK, which qualifies them to tutor students for the Olympiads. Beyond this, however, preparation of candidates takes place within the framework of an only slightly extended school day.²⁹ By comparison, the Hizmet system ensures that its students' chances of selection for the national team, and thereby their qualification for the International Olympiads, are greatly improved not only by requiring them to work more intensively, but by a litany of other strategies ranging from targeted recruitment to the effective utilization of peer role-models. Collectively these strategies give provide Hizmet with a competitive edge.

Career Choices in Science

Hizmet schools have, broadly speaking, proved themselves adept at training their students for entry to good universities, and at preparing them for desirable career paths. The Risale worldview at the heart of Hizmet, therefore, appears to provide a demonstrably successful framework for the engagement of conservative Islamic educators in secular scientific pedagogy. Yet the extent to which Hizmet science graduates remain engaged in the field of natural science after their success at high school seems to be relatively limited, which requires further explication.

In the Risale-i Nur, Said Nursi teaches that thoughtful inquiry into the causes and characteristics of natural phenomena is the duty of every pious Muslim. Following Nursi, Fethullah Gülen stresses the value of believers engaging in scientific endeavor in order to make new discoveries:

Man, who has been created in order that he shall rule over all things, needs to observe, read, discern and learn about what is around him [...] Science, with all its branches such as physics, chemistry, astronomy, medicine and so forth, is at the service of humanity, and every day brings new gains which may also be gifts of hope (Gülen 1998, Chapter 22, "Regrets about Science and Technology").

The Nursian vision that Gülen articulates is a response to what he perceives as a relative "backwardness" in the Islamic world in the fields of modern science. Accordingly, he teaches that, in an effort to purge "immoral" influences from scientific innovation, Muslim scientists should carry out research at the highest levels. Gülen refrains from saying as much, but following his line of thought, careers in natural science research might logically be "sanctified" in the service (hizmet) of Islam in the same way that, in his estimation, a secular teaching profession accomplishes this in schools.

It is interesting, however, that such a "sanctification" of natural science careers does not appear to be an important feature of Hizmet education. At the schools studied, only a very small number of students who excelled in science chose to study for a university degree in the pure sciences. Rather, the overwhelming preference was for acceptance into university engineering departments, with a very few interested in pursuing medicine. At School B, the Olympiad coordinator estimated that as many as 90 percent of his competition students applied for engineering, and 10 percent for medicine.³⁰ An interview with a group of eight math and chemistry Olympiad students at the boys' school of School A supported this statistic, revealing that six of them wanted to study a branch of engineering at

²⁹ Schools train their own students in preparation for the national Science Olympiad, which is where qualification for the Turkish national team is decided. TÜBİTAK assumes responsibility for training the national team, which goes on to compete in the five International Science Olympiads.

³⁰ Many students accepted to university to study engineering do so either partially or entirely in a foreign country (most commonly at postgraduate level in the USA), while those pursuing medicine are obliged to stay in Turkey because of restrictions on the practice of doctors with foreign medical qualifications. The teacher considered the desire to study in the USA to be the reason why so many science students preferred engineering to medicine as a career choice.

university, and two of them medicine. The Olympiad coordinator at the same school reported that this was quite typical, and explained the situation as follows:

Teacher: If they are strong at sciences (fen bilgisi) then they choose engineering...or sometimes medicine.

CT: Do they ever prefer to study for a degree in their own field of science, for example, chemistry?

Teacher: No. If they choose that route then the only career choice open to them when they graduate will be teaching. If you become an engineer or a doctor then you know you will find a good job. These are more successful professions, with better salaries.

CT: So none of these students pursue careers in scientific research?

Teacher: Well, a few do... we had a very successful chemistry student... he went to Germany to work for a pharmaceutical company. And another student went to the USA to do a Masters degree in physics. He's still studying, maybe doing a doctorate...³¹

It was clear from this conversation with the Olympiad coordinator that the priority for his science graduates was entry into professions that would guarantee job stability, earning power, and social prestige, which are all encompassed in Turkey by engineering and medicine. The aspirations of high-achieving Hizmet science graduates were, therefore, no different from high-achieving students all over Turkey, for whom acceptance to study engineering or medical science at one of the top universities represented the holy grail of higher education.

The career paths of Hizmet science students, which are consciously directed and supported by their teachers, can be understood in light of the Hizmet movement's broad goal of attaining social influence in modern Turkey (Hendrick 2013, 2009, Shankland 1999, Turam 2007). In order to redress the balance of power that favored "secularists" for much of the twentieth century, the movement actively seeks to reintegrate a religious voice back into public life. Accordingly, its members have sought and obtained positions of influence in many different spheres of society including private business and trade, banking, and the media.³² Education is the highly effective vehicle upon which the movement trains the next generation to participate and succeed in these competitive spheres. The wealth and influence that the movement has accrued in Turkey in recent decades is due in large part to its harnessing and channeling of pious religious sentiment into areas of "secular" social and economic activity. Gülen's wellknown mandate to his followers to "build schools, not mosques" encapsulates an ideology that blurs the boundaries between religious and secular, and that redefines the nature and parameters of religious duty for his followers.³³

Although the pursuit of wealth and success for personal gain is frowned upon both in Gülen's teachings and in the movement's internal culture, social success is (somewhat paradoxically) clearly endorsed

³¹ Fieldwork interview, boys' school in School A, April 2013.

³² They also have an ambiguous yet important relationship with politics in general, and up until very recently, with the ruling AKP in particular (Hendrick 2013, Turam 2007). Hizmet media outlets include the widely circulated daily newspaper Zaman and its Englishlanguage partner, Today's Zaman, and several private television channels. In the banking and finance sector, Bank Asya and Işık Sigorta (Insurance) are notable Hizmet ventures.

³³ Emphasis is often laid in the movement on Islam as a system of universal ethics, a narrative which helps to facilitate the engagement of religiously motivated actors in apparently non-religious spheres. See the discussion in Agai (2002).

as an implicit strategy of competition with secularist rivals for positions of power. An important Qur'anic principle that Gülen emphasizes is the Islamic value of moderation (cf. Qur'an 5:87, 25:67):

One should avoid going to extremes in one's thinking and actions. Going to extremes is a lethal poison. As it is wrong to seek simplicity and sincerity in poor clothing or a life being lived in a miserable house with a few, broken old things, so too it is wrong to see sophistication, civilization and prosperity in the modern style of expensive clothes and other luxuries (Gülen 2010: 99).³⁴

The accumulation of wealth with the proviso that its use is "for the sake of God" is, however, strongly endorsed and frequently explained with exemplary illustrations from Muhammad's life: "As we take into consideration the riches allocated to his [ie, Muhammad's] use we see that he had the means to equip an entire army. He spent them for the sake of God..." (Gülen, "Worldly Means and the Criteria for Planning the Future"). In the movement, wealth and position are legitimized by way of a religious idiom, and are channeled into economic initiatives that increase the prominence of a conservative Muslim voice in Turkish society. In this sense, the pursuit of material prosperity is appropriated as a tool of resistance towards secularist hegemony.³⁵ The notion of *fedakarlık* might, therefore, be central to the movement's activities in education, which are surely dependent for their success on the extraordinary commitment of teachers,³⁶ but it is a notion in the service of wider and more complex goals of the movement as a whole, to which economic prosperity and social success are crucial. Thus it is logical that the highest achievers of the Hizmet education system are encouraged to pursue careers in lucrative professions such as engineering and medicine, rather than career paths in the natural sciences, which are considered both riskier and more marginal. As the teacher quoted above alluded, the handful of students who do choose to pursue research in the natural sciences invariably do so at universities in a foreign country, most commonly in the USA. Indeed, exceptionally gifted students may win scholarships to undertake undergraduate and/or doctoral studies at prestigious American universities that can offer dynamic research programs in the natural sciences.

A notable recent development in the Hizmet movement's activities in Turkey is its increased interest in the field of higher education. In recent years, Hizmet supporters have opened an estimated thirteen new private universities in Turkey.³⁷ This development signals a new era in the Hizmet education movement. To date, the only associated university has been Fatih University in Istanbul (founded in 1996). The new universities differ from one another in academic focus; for example, Süleyman Şah University in Istanbul focuses on the humanities and social science, while Ankara's Turgut Özal University and Antalya's International University focus on economics, technology, and law. It is intended, however, that all of the new Hizmet universities should be research-led and academically competitive at an international level. Accordingly much of the faculty is recruited from the USA, and

³⁴ This teaching exists somewhat in tension with Gülen's own apparently ascetic lifestyle, which is generally considered to be exceptional.

³⁵ For a fuller discussion of the movement's engagement with the forces of economic globalization in order to "increase the Muslim share" of social and political power in Turkey, see Hendrick 2013.

³⁶ The teachers who travel abroad to teach in Hizmet schools in developing or conflict-ridden countries are particularly applauded for their sacrifice. A visual demonstration of this is the 2013 film *Selam*, produced by the movement, which narrates the stories of three different teachers choosing to sacrificially serve (*hizmet etmek*) by teaching in Hizmet schools in Senegal, Afghanistan and Bosnia-Herzegovina. See www.selamfilm.com (Accessed, July 12, 2013).

³⁷ This was a commonly cited figure that we were unable to verify. Individuals in the movement are typically reluctant to provide any precise statistics related to Hizmet activities, largely because they tend to distance themselves from the notion that Hizmet enterprises are affiliated with each other or that they are centrally organized. For more on the movement's employment of "strategic ambiguity" as an organizational strategy, see Hendrick 2013.

boast PhDs from that country's top universities.³⁸ If in the coming years these universities are able to establish the research profiles that they promise, then this may present attractive opportunities for Turkish graduate students to remain at home rather than to pursuing doctorates abroad. There is, however, little evidence to date that any of these new Hizmet universities have chosen the natural sciences as their academic focus. Although an extremely tentative observation, if it proves to be the case then it seems likely that the next generation of students pursuing graduate studies and careers in the natural sciences will continue to do so abroad.

Conclusion

By focusing on the provision of quality math and science education at the secondary level, the Gülen-Hizmet movement has negotiated for itself a highly desirable place of activity and influence in Turkish society. The market for private high schools (*kolejler*) able to demonstrate proficiency in preparing students for university entrance is strong across all sectors of middle-class society and with a reputation for academic rigor in math and science, Hizmet schools appeal beyond the circles of supporters and sympathizers. Science education is thus embraced as an effective tool of social engagement, and the culture of scientific learning is highly competitive. Scientific inquiry is legitimized in religious and philosophical terms by reference to Said Nursi's *Risale-i Nur*, which relocates scientific endeavors within a pious Islamic paradigm. Working within a conceptual framework of piety and self-sacrifice (*fedakarlık*), teachers invest heavily in the academic and personal lives of students who are imagined as the "Golden Generation" in Gülenist thought.

The emergence of the science-focused Hizmet schools, and the high quality of their educational product, is significant with regard to the popular reception of modern science in the contemporary Muslim world. What remains to be seen, however, is the extent to which these schools can equip their students to pursue research in the natural sciences at a professional level, and consequently to contribute to reinvigorating an Islamic "culture of science" in Turkey and beyond.

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³⁸ See for example the faculty page of Antalya International University's website, which shows that the vast majority of its (mostly Turkish) teaching staff hold American doctorates, many of them from prestigious schools. <http://www.antalya.edu.tr/#/akademik/akademik-kadro-uau> (Accessed, July 11, 2013).

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