

**Max Wertheimer MINERVA Center for Cognitive Processes and Human
Performance**

Report of the Eighth Advisory Council Meeting

Haifa, 7 – 9-March 2010

The eighth Advisory Council Meeting took place in Haifa from 7 – 9 March 2010. It started on 7 March with a scientific colloquium at the University of Haifa. During this colloquium, the members of the Center from University of Haifa provided a short introduction to their specific research areas which was followed by a presentation of a doctoral student or a post-doctoral member of their group. A second, and with respect to the format, equivalent symposium was held on Monday, 8 March 2010 at the Technion. Both symposia were supplemented by lab visits and additional brief presentations of research projects provided by PIs, doctoral and post-doctoral students, or graduate students supported by the Center (see the program attached to this report).

The Council's formal meeting took place on Tuesday morning, 9 March 2010. This meeting included an internal discussion of the members of the Council, as well as a closing meeting with the current and future directors of the Center, i.e. Prof. Asher Koriat (Haifa University), Prof. Daniel Gopher (Technion), Prof. Ruth Kimchi (Haifa University), Prof. Ido Erev (Technion). In addition, the closing meeting was also attended by Mrs. Angelika Lange-Gao from the Minerva Foundation. Mrs. Lange-Gao provided first-hand information about recent changes of funding policy implemented by the Foundation and with an impact on the timing of external evaluations of existing Minerva Centers and conditions of their prolongation. Information about these changes had also been circulated in written form among Council members and Center directors before the meeting.

The three German members of the Council, i.e.

- **Prof. Dietrich Manzey** (Council Chair, Department of Psychology and Ergonomics, Berlin Institute of Technology),
- **Prof. Reinhold Kliegl** (Department of Psychology, University of Potsdam),
- **Prof. Pienie Zwitserlood** (Department of Psychology, University of Münster),

participated in the symposia and the lab visits at University of Haifa and Technion, as well as the internal discussion and closing meeting. Due to teaching obligations, the three Israeli members could not attend all activities. **Prof. Yaakov Kareev** (School of Education, Hebrew University of Jerusalem) attended the two symposia and lab visits but was not able to participate in the internal discussion and closing meeting. His comments and advices were

provided separately to the chair of the Council. **Prof. Arie Melnik** (Dept. of Economics, University of Haifa) participated in the two symposia, parts of the lab visits, as well as the internal discussion and closing meeting. **Prof. Hillel Pratt** (Dept. of Behavioral Biology, Technion) could not attend any of the events because he was on a sabbatical outside of Israel.

This report is based on the following sources:

- The Center's Report of Activities 10/ 10/2002 – 09/2009. This report also includes the fiscal reports for the periods 10/2006-09/2007, 10/2007 – 09/2008, 10/2008 – 09/2009, as well as the budget proposals for the periods 10/2009 – 09/2010, and 10/2010 – 09/2011. The report had been prepared on the assumption that the Council would have to evaluate the activities of the Center since the last external evaluation in 2003. However, given the recent changes of evaluation policy, only the development during the last two years (since the last Council Report), as well as the fiscal reports for this period will be considered in the following.
- Direct impressions from the symposia and site visits at University of Haifa and Technion.
- Extensive discussions with all principal investigators (Prof. Ido Erev, Dr. Morris Goldsmith, Prof. Ruth Kimchi, Prof. Joel Norman, Dr. Eldad Yechiam, Dr. Yaffa Yeshurun), and the current directors of the Center (Prof. Asher Koriat, Prof. Daniel Gopher) during the symposia and the lab visits.

Based on these sources, and further considering the upcoming external evaluation of the Center, the Council agreed on the following conclusions.

1.

Over the years of its existence, the *Max Wertheimer Center of Cognitive Processes and Human Performance* has gained a high international reputation for its basic and applied research. This is confirmed by the scientific output of the Center during the past two years which again was evaluated as highly productive and excellent. Considering only the publications that have been published since the last report, the eight members of the Center altogether have published more than 50 articles in scientific journals, including a considerable number of publications in some of the most prestigious journals of their respective areas. This list is complemented by a number of book chapters, as well as numerous contributions to international conferences. Although not all of these publications can be fully attributed to the research activity within the Center, they nevertheless document the excellent scientific level and productivity of the Center's members and principal investigators (PIs). In addition, the members of the Center again were successful in raising additional funds. This is reflected in a total of eleven ongoing projects funded, e.g., by ISF, BSF or EU. The seed money provided by the Center contributed significantly to the acquisition of most of these projects. Based on this impressive balance of scientific activities the Council is unanimous in its judgement that the Minerva fund allocated to the Center has again been used in a most efficient, appropriate and productive way.

As in the previous years, the sub-center at University of Haifa has focused on research on attention, perception, and meta-cognition with an emphasis more on basic than on applied research. The research conducted at the Technion mainly comprised basic research on human decision-making, as well as theory-guided human factors research.

The list of ongoing research projects of the Center includes a total of 13 projects, each of which is directed by one or two members of the Center, sometimes also in cooperation with post-docs from the related institutes. The topics, principal investigators and affiliations of the projects are:

- (1) *Monitoring of one's own knowledge during Learning and Remembering* (PI: Asher Koriat, Haifa University)

- (2) *Monitoring of control processes in learning and memory* (PIs: Asher Koriat, Morris Goldsmith, Haifa University)
- (3) *The control of visual attention to objects and space: A dynamic, interactive framework* (PIs: Morris Goldsmith, Meni Yeari)
- (4) *Human perceptual organization* (PI: Ruth Kimchi, Haifa University)
- (5) *Configural processing in face perception* (PI: Ruth Kimchi, Rama Amishav, Haifa University)
- (6) *The implications of the two visual systems concept to perception and action* (PI: Joel Norman, Haifa University)
- (7) *Visual spatial attention* (PI: Yaffa Yeshurun, Haifa University)
- (8) *Control processes, attention, and mental workload* (PI: Daniel Gopher, Technion)
- (9) *Human factors and safety in medical systems* (PI: Daniel Gopher, Technion)
- (10) *The psychology of small decisions* (PI: Ido Erev, Technion)
- (11) *Training and learning based on the development of cognitive strategies* (PI: Daniel Gopher, Ido Erev, Technion)
- (12) *Individual differences and decision style* (PI: Eldad Yechiam, Technion)
- (13) *SKILLS-Integrated project: multimodal interfaces for capturing and transfer of skill* (PIs: Daniel Gopher, Eldat Yechiam, Technion)

The scientific output of the different projects in terms of publications varies dependent on its focus on more basic or applied research, with the latter sometimes published in Technical Reports or Conference Proceedings only. Yet, all of the projects are performed on a high scientific level with a strong foundation in psychological theory.

Projects #7 and #12 are led by Dr. Yaffa Yeshurun and Dr. Eldat Yechiam, respectively, who joined the Center as members in 2008 (Dr. Yechiam has served as PI since 2005). The Advisory Council recognizes that both of them have become very well integrated and that their research already has contributed to strengthen the scientific profile of the Center. Dr. Yeshurun's work in the area of visual spatial attention meets international standards and has been published in prestigious journals. Dr. Yechiam has already become one of the most productive members of the Center. His contributions in the area of human-decision making and individual differences are internationally recognized and have clearly improved the scientific record of the sub-center at Technion.

The written report and the scientific presentations at the colloquia documented that all of the different projects are well under way, and provide a good basis for the further development of the Center. Based on this evidence, the Council is convinced that the Center will continue to constitute a highly recognized center of excellent research in the area of cognition and human performance.

2.

The Advisory Council accepts the format of the overview of research activities in the written report, the oral presentations, and the lab presentations. However, there are some concerns whether the current format of the written report will also provide a good and appropriate basis for the upcoming external evaluation. Currently, the documentation of scientific activities is mainly structured by the contributions of the different members and PIs of the Center. The Council is aware that this kind of structure is most effective for preparation of the report based on work-sharing among the different members. However, the chosen format makes it difficult to perceive the programmatic profile of the Center. Furthermore, it is difficult to identify areas of joint contributions by different members. In particular, with respect to the upcoming external evaluation the Council recommends to revise the report in the following way: (1) Instead of clustering the research according to individual achievements of

the different members it is suggested to structure the report according to the main research areas addressed in the Center (e.g. “Meta-Cognition of Learning and Memory”, “Visual Perception and Attention”, “Decision-Making”, “Skill Acquisition” and “Human Factors”). This makes it easier to recognize the cognitive processes and human performance issues addressed in the research and how the different projects relate to each other. (2) The present listing of scientific activities and output of the individual members of the Center suggests that all of their achievements represent direct results of the research activity of the Center. Given that the yearly funding provided by Minerva is quite limited, it is obvious that the contribution arises from funding of pilot work. Future reports should distinguish more clearly between projects and related outcomes that directly represent a research activity of the Center (i.e. its members and students) and those that are associated with the Center in a sense that they have benefited from the Center’s activities. For example, the Minerva-funded research of Prof. Gopher in the Center provided an important basis for the successful acquisition of the large-scale, international SKILLS project, funded by the EU. Also the high reputation associated with Minerva centers opened doors for cooperation. Nevertheless, in the Center report it is not appropriate to claim the entire output of the SKILLS project for the Minerva Center. Listing this and other similar projects separately under a given research topic will make transparent to what extent original research has been conducted in the Center, and where and how the Minerva funding has been used as seed money for acquiring grants from other sources.

3.

Reviewing the list of publications produced in the center, the Advisory Council recognizes a considerable number of publications in the two sub-centers that were co-authored by at least two members of the Center. It interprets this as evidence for the lively cooperation within the sub-centers at University of Haifa and Technion. However, no publications can be found that would represent cooperative work across the two sub-centers. The Advisory Council finds this quite understandable given the different topics of research at both sub-centers. However, it reiterates the recommendation already given in earlier reports, to consider opportunities for stimulating contacts and common discussions of research between the members and students of the different sub-centers. For example this might be achieved by conducting a kind of Minerva seminar on a yearly basis where the scholars of both sub-centers present their work. Although the Advisory Council recognizes that the researchers at the different sub-centers work on quite different topics, they nevertheless might benefit from a joint discussion of their projects. Furthermore, a regular meeting of all members and scholars might also contribute to foster the corporate identity of the different researches representing the Center.

4.

Both sub-centers have successfully incorporated master and doctoral students in their projects. This is reflected most directly by a total of 15 doctoral students (Haifa: 6, Technion: 9) who work in the Center supported by scholarships from the Minerva funding. Most of these doctoral students are supported by master students contributing to their research. As in the previous years the Council was impressed by the open and cooperative spirit within the Center which provides a very motivating and stimulating atmosphere for research. The Council was also pleased to see that the senior researchers of the Center obviously put much effort in educating and coaching young scientists.

5.

The Center members were successful in acquiring grants from other sources. A total of six new projects have been launched since the last Council meeting, and several other proposals have been submitted or are currently under way. This testifies that, as in previous years, the Minerva fund has not only been used for direct support of research projects (e.g. funding of PhD students) but also as seed money for new projects and the acquisition of grant money from third parties. Altogether, the list of ongoing projects which are associated with the Center but funded by grants from other parties (e.g. the Israeli Science Foundation,

the US-Israel Bi-National Science Foundation, or the EU) currently includes a total of eleven projects (see page 15f. of the report). The Advisory Council appreciates that this list also includes three projects that involve cooperation with German colleagues. The first one is a project funded by the German-Israeli Foundation for Scientific Research and Development (GIF; Prof. Asher Koriat together with Prof. Schneider and Dr. Lockl from University of Wuerzburg), the second one includes a contribution to an EU project (NEST, Prof. Asher and Dr. Goldsmith together with Prof. Markowitsch from University Bielefeld), and the third one is the SKILLS project that is funded by the EU and coordinated by Prof. Gopher (involves partners from DLR and German industry). All of these projects will terminate in 2010 or 2011, and initiatives need to be taken to look for new options of cooperative projects. The Advisory Council was pleased to hear that such initiatives are already under way. For example, Prof. Norman and Dr. Yeshurun have established a contact with Prof. Velichkovsky (University of Dresden) in order to explore the possibility of submitting a common grant proposal, and Dr. Yechiam has started a collaboration with Dr. Andreas Glöckner (MPI for Research on Collective Goods) that already has resulted in a common publication.

6.

In the report of the Seventh Council Meeting in 2008, as in some previous reports, the concern was raised that the technical infrastructure available at the Max Wertheimer Center might become outdated, i.e. it no longer represents state-of-the-art research technology. This led the Council to strongly support a request over € 32.000 for replacement of information technology and experimental equipment which the directors submitted in response to the “2009 Call for Application Minerva Centers Funding for Equipment”. The Advisory Council is very pleased that this request was approved by the Foundation. It enabled the Center to partially renew the hard- and software available in the Center’s laboratories at University of Haifa and Technion for research and graduate training. The approval of the request ensures that research and training in cognition and human performance are continued on a qualitatively high scientific level.

7.

The two current directors of the Center, Prof. Asher Koriat (University of Haifa) and Prof. Daniel Gopher (Technion), are approaching retirement. Although they will remain active PIs they decided to transfer the directorate to two younger Center members, Prof. Ruth Kimchi (University of Haifa) and Prof. Ido Erev (Technion). This decision was made in close coordination with the Council and was accepted by the presidents of the University of Haifa and the Technion. The Council is very much in agreement with this decision, as Prof. Kimchi and Prof. Erev are among the most productive Center members. Both are highly recognized scientists and have an excellent international reputation in their specific areas of research which also represent pivotal areas of the scientific research at the Center. The Council is convinced that the new directors will successfully continue the work of their predecessors, and will contribute to the future development of the Center’s research activities on a high scientific level.

8.

With full respect of the responsibility of the Minerva Center Board for scheduling the Center’s evaluation and its future format, the Council submits the following recommendation: The *Max Wertheimer Center of Cognitive Processes and Human Performance* has a unique scientific focus within the “Human Science” clusters of Minerva Centers. It focuses on experimental psychological and human factors research with scientific approaches and methods typical for natural sciences. In contrast, most of the other Centers in this cluster focus on topics that are closely related to classical “Humanities”. This makes a competitive evaluation of this Center with the other Centers of the cluster at least difficult. **Therefore, the Council recommends a single evaluation of the Max Wertheimer Center towards the end of the two-year time window envisioned for the evaluation process.** A revised and updated version of the present report of activities for the years 2003-2010 (see above), would constitute a very good basis for this evaluation and could also serve as the basis for

the next meeting of the Advisory Council. This meeting could be scheduled according to the current rhythm for spring 2012, preferably the second half of February. Its main purpose would be to provide advice on implementation of the evaluation results, whatever they will be. At this time a replacement of the current Council should be considered and new members appointed.

9.

The Advisory Council took the following formal decisions:

- The Report of Activities 1/10/2002 – 30/09/2009 is fully approved (for evaluation of scientific activities, see above).
- The Fiscal Reports for the periods 1/10/2007 – 30/09/2008 and 1/10/2008 – 30/09/2009 are fully approved (the report for the period 1/10/2006 – 30/09/2007 was already approved during the last meeting of the Council in February 2008; see the report of the Seventh Council Meeting).
- The Budget Proposal for 1/10/2009-30/09/2009 is fully approved (pp. 226-227 of the report).
- The Budget Proposal for 1/10/2009 – 30/09/2011 (pp. 228-229 of the report) is fully approved
- The upcoming fiscal report 1/10/2009 – 30/9/2010 shall be approved on a written basis in due time.

These decisions were taken in accordance with all Council members who participated in the Council meeting.

10.

The Advisory Council gave its unanimous consent to this report.

Berlin, 09/04/10

A handwritten signature in black ink, appearing to read 'Dietrich Manzey', written in a cursive style.

Prof. Dr. Dietrich Manzey