Chapter 8
In and Out of the Laboratory: Herzberg, Job Satisfaction and the Attitudes of Finnish University Academics

Timo Aarrevaara and Ian R. Dobson

8.1 Introduction and Background

The aim of this chapter is to compare and contrast the job satisfaction enjoyed by university academic staff in Finland in laboratory and non-laboratory disciplines. The source of data for this study is the Changing Academic Profession (CAP) Survey, conducted in 2007/8 (International data set March 2010). Within the context of these data, laboratory disciplines include physical sciences, mathematics, computer sciences, engineering, manufacturing and construction, architecture, agriculture, medical science, health related sciences and life sciences. 'Social services' are also included in the laboratory-based group, because it is not possible to disentangle respondents in this sub-discipline, included with medical science in the international CAP. Non-laboratory disciplines include teacher training and education science, humanities and arts, social and behavioural sciences, business and administration, economics, and law.

One of the reasons for examining this bifurcation is that Finnish science and technology has been supported through a range of schemes aimed at bolstering Finnish innovation. Extensive government programmes have been carried out in several technology-oriented since the mid-1990s. For example, the Finnish Ministry of Education and Culture carried out an Information Industry Programme, investing around €174 m in the period 1998–2005. The aim of this programme was to enhance education leading to the awarding of university degrees in information technology, comprising a professional upgrading programme and expansions of undergraduate

T. Aarrevaara (✉)
University of Lapland, Rovaniemi, Finland
e-mail: timo.aarrevaara@ulapland.fi

I.R. Dobson
Office of Senior Vice-President, Monash University, Melbourne, Australia
e-mail: ian.dobson@monash.edu

J.F. Galaz-Fontes et al. (eds.), *Biographies and Careers throughout Academic Life*, The Changing Academy – The Changing Academic Profession in International Comparative Perspective 16, DOI 10.1007/978-3-319-27493-5_8

degree programmes (Kivistö and Aarrevaara 2005). There has also been an extensive virtual university programme (funded to approximately €23 m in the period 2001–2006 for universities to allocate according their own preferences). The government stressed the growth in the use of information and communication technology in teaching, and enhancement of expertise and its aim to strengthen the culture of development in the virtual university programme (Aarrevaara et al. 2007).

As with any form of taxonomy, imperfections accrue when cases from different groups are aggregated. For example, an academic teaching the history and philosophy of science might be a historian (i.e. with a non-laboratory background in the humanities), but could find themselves in a department in a faculty of science (i.e. in a laboratory-based department); and vice-versa. The CAP survey provided respondents with the option of defining their academic discipline according to their highest degree, their current academic unit and their current teaching. For this chapter, we opted for 'current academic unit' as the best indicator of the environment in which academics find themselves. In fact, in the Finnish sample, 23 university academics with their highest degree in non-laboratory disciplines were in a department within the laboratory-based disciplines and 21 Finnish university academics with their highest degree in a laboratory-based discipline were in a non-laboratory-based department. Terms such as 'laboratory-based disciplines' and 'laboratory-based departments' have been used interchangeably.

The rationale for undertaking analysis along discipline-based lines is that there is a history of emphasising science and technology in Finnish society. Most of the funding generated by special programmes in science and technology has been for work outside higher education, but there is considerable spin-off that has provided an indirect benefit to higher education. Apart from anything else, wide government support for technology means increased demand for those qualified in technology-based disciplines. The knock-on effect here is that universities will therefore need to maintain vibrant laboratory-based academic departments. 'The proposition, therefore, is that if Finnish scientists and technologists have been so well-supported by government-funded programmes, perhaps university academics involved in laboratory-based disciplines should be more motivated than their colleagues from other disciplines.'

Of all laboratory-based disciplines, it can be postulated that engineering has been 'the favoured son' (or daughter) in support and generosity from the education bureaucracy and Finnish research funding bodies. In 2010 the funding for Academy of Finland was €384.4 m and TEKES (the predominant Finnish funding authority for technology-based funding) for €610.8 m, which was about 40 % of all government funding for research and development. TEKES, which focuses its funding on the natural sciences and technology, networking with companies is emphasised. Funding for Strategic Centres for Science, Technology and Innovation (SHOK) have contributed to this development in recent years. In addition, the government has been particularly supportive of Finland's two major technology-based universities, particularly the recently established Aalto University. The new Universities Act (2009) (558/2009) moved universities from being a formal part of the state administration and bureaucracy, and strengthened their financial and administrative

autonomous status. As a part of university structure reforms universities became independent legal entities and ceased to be part of the state structures (Aarrevaara et al. 2009).

Finland has three 'universities of technology'. These are Aalto University, Tampere University of Technology (11,200 students and 1200 academic staff in 2009) and Lapeenranta University of Technology (5700 students and 580 academics), the latter two universities being located in regional cities. Aalto University in the capital (Helsinki) region was established via a merger between Finland's major technological university (the Helsinki University of Technology with about 14,400 students in 2009 and 2500 academic staff), with the Helsinki School of Economics (about 3500 students and 300 academic staff) and the University of Arts and Design (about 1900 students and 220 academic staff). The aim of this endeavour was to establish 'a world class university', which while a highly positive aspiration perhaps underplays the importance of the University of Helsinki, which is already shows up as a world class university in international league tables, especially among those from non-English language countries (The Times Higher Education 2008; Shanghai Jiao Tong 2008).

8.2 Enumeration: Characteristics of Finnish University Academics

Overall, there were 1452 responses from participants in the Finnish survey, and academics from both sides of Finland's binary higher education system were involved. In this chapter, we have considered responses from university academics only. The polytechnic sector is relatively new, having been established about 20 years ago, with a particular focus on technical higher education and regional development. The same extensive funding programmes have been targeted at both sides of Finland's binary system, but at this stage, comparing 'disciplines' in universities and 'study fields' in polytechnics is quite a challenge.

Of the 1452 valid questionnaires obtained from the Finnish CAP survey, the 1115 from university academics were analysed for this paper. Of these, 176, or 16.7 % did not identify their academic discipline. It is possible that some of the non-respondents to this question felt unable to identify with any of the disciplines listed.

Table 8.1 provides a summary of respondents according to seniority, gender and compares the CAP survey population with the national population of Finnish academics. In the Finnish survey, senior academics were defined as those occupying full professor and associate professor positions, or equivalent ranks. Senior academics represented 26.8 % of the Finnish sample in universities, and were represented slightly more in non-laboratory (28.2 %) than laboratory departments (25.8 %). This is an under-representation compared with the national population, in which 49.7 % of academics occupied senior posts.

Looking at senior academics in the CAP survey, 56.4 % were in laboratory-based departments, compared with 59.3 % of academics in junior ranks. The table also

Table 8.1 Finnish university academic staff in laboratory and non-laboratory departments by Gender: CAP Survey c.f. National Database

	Senior academics	Junior academics	Total	Percentage senior
National database (total)	3556	3593	7149	49.7
Women (n)	812	1931	2743	29.6
Women (%)	22.8	53.7	38.4	
CAP (total)	243	664	907	26.8
Women (n)	77	359	436	17.7
Women (%)	31.7	54.1	48.1	
CAP survey non-laboratory (total)	106	270	376	28.2
Women (n)	47	159	206	22.8
Women (%)	44.3	58.9	54.8	
CAP survey – laboratory (total)	137	394	531	25.8
Women (n)	30	200	230	13.0
Women (%)	21.9	50.8	43.3	
CAP survey – lab. % of total	56.4	59.3	58.5	
% women	39.0	55.7	52.8	

Source: CAP Survey 2007/2008
Question A10 'What is your academic rank?', and Question F1 'What is your gender?'

shows that 58.5 % of Finnish university respondents were in laboratory-based departments. This compares with the approximately 50 % of academics in such departments in all of Finland's universities (Ministry of Education and Culture 2010).

The table also divides the responding population by sex. Overall, just over 48 % were women, compared with 38.4 % in the overall academic population in Finnish universities. The laboratory-based disciplines had a lower proportion of men, where they represented 43.3 % of all laboratory-based academics. The equivalent figure among non-laboratory disciplines was 54.8 %.

On the matter of gender distributions, Fig. 8.1 compares the proportion of women that responded to the CAP survey questionnaire in laboratory and non-laboratory departments, compared with the total population from the national database. As can be seen, there is little disparity among junior academics when comparing the CAP survey with national figures, but there are differences among senior academics.

In the academic world, some academics have a leaning towards teaching and others a preference for research. The differences concerning whether academics' primary interest is one thing or another is presented in Table 8.2, and the distribution can be explained by reference to Finnish academic tradition. The academic profession in Finnish universities has research as its primary focus in the early stages of an academic career (Aarrevaara and Pekkola 2010). Applicants for academic posts at Finnish universities may have been appointed to them primarily according to their achievements in research, and research is of great importance when filling teaching posts. For example, at the University of Helsinki, a minimum requirement for someone holding a permanent teaching post is a PhD or an equivalent degree.

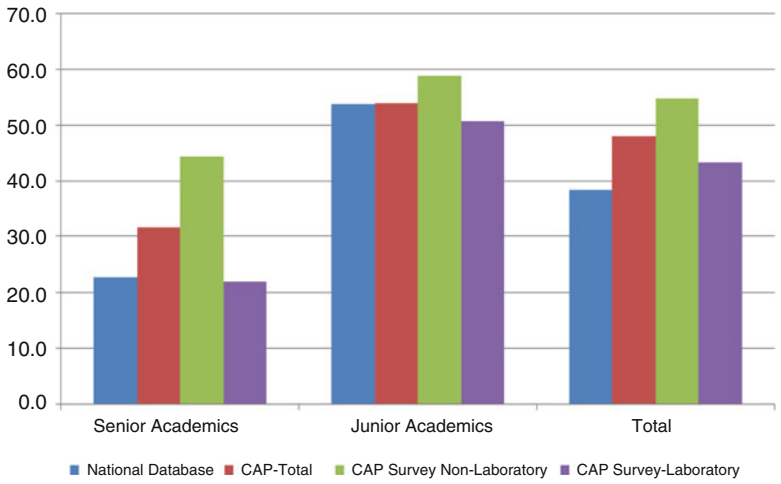

Fig. 8.1 Comparison of finish CAP data and National Database: percentage of women by academic rank and according to type of department (Source: CAP Survey 2007/2008)

Table 8.2 Preference for teaching over research of Finnish academics

Preference for teaching or research	Non-laboratory	Laboratory	Total	Non-laboratory (%)	Laboratory (%)	Total (%)
Primarily in teaching	35	20	55	9.0	3.7	5.9
In both – leaning towards teaching	61	76	137	15.7	14.0	14.7
In both – leaning towards research	185	235	420	47.7	43.2	45.1
Primarily in research	107	213	320	27.6	39.2	34.3
Total	388	544	932	100.0	100.0	100.0

Source: CAP Survey 2007/2008
Question B2 'Regarding your own preferences, do your interests lie *primarily* in teaching or in research?'

In Finnish universities, it is normal for an academic career in its early stages to be focussed on research, with the focus on teaching increasing with seniority. This also indicates that in the laboratory-based disciplines teaching work tasks are more regular in the early stages than in the non-laboratory areas. Finland therefore differs from the key reference countries of the CAP survey, because teaching is the focus of senior academic staff more often than in most countries.

Table 8.2 divides Finnish academics according to their leaning towards teaching or research. Overall, 740 academics out of 932 (79.4 %) responded that their preference was for research, or for teaching and research, but with a leaning towards research. Among laboratory-based academics, a higher proportion expressed a leaning towards research than their non-laboratory colleagues were: 82.4 % of laboratory-based academics (c.f. 75.3 % of academics from non-laboratory disciplines) responded.

Of the academics that expressed a preference for teaching, 63.6 % were in non-laboratory disciplines, compared with 36.4 % of academics in laboratory disciplines. At the other end of the spectrum, the figures are almost reversed, with 33.4 % of academics in non-laboratory disciplines claiming a preference 'primarily in research', compared with 66.6 % of academics in laboratory disciplines. Academics 'in the middle', that is, those identifying a preference in both teaching and learning were distributed approximately 45–55 % between non-laboratory and laboratory disciplines, respectively.

In seeking to establish the nature of differences between Finnish university academics in laboratory and non-laboratory departments, we examined the incomes and income streams reported by Finnish academics in their responses to the CAP survey. Obviously, income is highly correlated with seniority, but the difference in proportions of each in laboratory and non-laboratory disciplines was shown to be not great in Table 8.1. The salary system in Finland is highly regulated, but there is scope for differences between individuals, because the system is based on a mix of job demand levels and personal attributes (University of Helsinki n.d.). Salary differences between universities are not great. Before the Universities Act (2009) took effect from 1 January 2010, there was little scope for inter-institutional variations, and even if the new act had the potential to usher in a new era in competition between universities, the universities saw fit to establish a single body through which they would conduct negotiations with the various university labour unions (Kekäle 2008).

The top section of Table 8.3 and Fig. 8.2 provide a summary of average university salaries earned by laboratory and non-laboratory academics.

Table 8.3 Finnish university academic staff in laboratory and non-laboratory departments, by source of income and level of income (euros)

	Non-laboratory	Laboratory	Total	Non-laboratory (%)	Laboratory (%)	Total (%)
Income from 'your current university' (Euros)						
0–29,999	107	166	273	32.5	35.4	34.1
30,000–39,999	72	127	199	21.8	27.1	24.9
40,000–49,999	59	77	136	17.9	16.4	17.0
50,000–59,999	35	32	67	10.6	6.8	8.4
>59,999	57	67	124	17.3	14.3	15.5
Total	330	469	799	100.0	100.0	100.0
Income from 'other employers' (Euros)						
0	231	363	594	70.0	77.4	74.3
>0	99	106	205	30.0	22.6	25.7
Total	330	469	799	100.0	100.0	100.0
Income from 'self-employment' (Euros)						
0	270	400	670	81.8	85.3	83.9
>0	60	69	129	18.2	14.7	16.1
Total	330	469	799	100.0	100.0	100.0

Source: CAP Survey 2007/2008

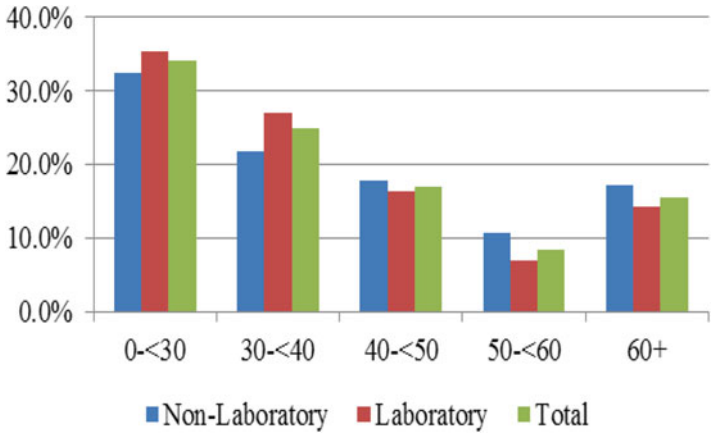

Fig. 8.2 Finnish university academic staff in laboratory and non-laboratory departments, by level of income from 'your current university' ('000 Euros) (Source: CAP Survey 2007/2008)

According to responses to the CAP survey, academics in laboratory-based departments earn higher salaries from their current university than their non-laboratory counterparts in lower to middle ranges do, but thereafter, it appears that non-laboratory academics earn more, on average. This observation parallels the distribution of staff between senior and junior academics. As could be seen in Table 8.1, 74.1 % of academic staffing in laboratory-based departments were junior academics, compare with 71.9 % of those in non-laboratory departments.

The relative number of senior scholars is higher in the other than laboratory disciplines. This is because the growth in laboratory disciplines has been stronger than other disciplines and they have employed new academic staff more often than the other disciplines. These new academics tend to be young, early career academics.

The other two sections of Table 8.2 show a minority of Finnish academics generate an income from outside their own university. However, 30.0 % of non-laboratory-based academics reported having an income from another employer (compared with 22.6 % for laboratory-based academics), and 18.2 % and 14.7 % of non-laboratory and laboratory academics reported an income from self-employment.

These figures suggest that the great majority Finnish academics are dependent on their own university for their income. An additional question from the CAP survey that asked a direct question about multiple income sources (Question A8) was not asked in the Finnish survey.

Table 8.4 provides further basis for seeking to find differences between academics in laboratory and non-laboratory departments. Looking first at teaching hours while classes are in session, the table shows that laboratory-based staff spend fewer hours in teaching. In fact, among those in laboratory-based departments, nearly 55 % spent fewer than 11 h per week on teaching and teaching-related activities, compared with about 43 % of academics in non-laboratory departments. However, about 23 % of academics in both laboratory and non-laboratory departments spent between

Table 8.4 Finnish university academic staff in laboratory and non-laboratory departments, by weekly hours spent on teaching (when classes are in session or not in session)

	Teaching hours: when classes are in session				Teaching hours: when classes are not in session			
	Non-laboratory (%)	Laboratory (%)	Total (%)	Total no.	Non-laboratory (%)	Laboratory (%)	Total (%)	Total no.
0 h	14.3	20.6	18.0	152	29.3	33.4	31.7	226
1–10 h	28.6	34.3	32.0	270	58.0	54.5	56.0	399
11–20 h	22.6	23.2	23.0	194	8.3	10.4	9.5	68
21–30 h	21.7	12.1	16.1	136	3.0	1.2	2.0	14
>30 h	12.9	9.7	11.0	93	1.3	0.5	0.8	6
Total	100.0	100.0	100.0	845	100.0	100.0	100.0	713

Source: CAP Survey 2007/2008

11 and 20 h on teaching and related activities during the time when classes are in session. It can also be seen that more non-laboratory-based academics spend more hours on teaching: about 44 % spent 21 or more hours on teaching, compared with about 35 % of academics from laboratory departments.

When classes are not in session, fewer hours are spent in classes (by definition), but those with a preference or leaning towards teaching will still spend more of their time on teaching-related duties than academics with a stronger research focus. The results reported in the previous paragraph indicated a stronger teaching focus among non-laboratory academics, but this leaning is less obvious when classes are not in session. About 87 % of laboratory-based academics and their non-laboratory-based colleagues spent fewer than 10 h per week on teaching-related duties when classes were not in session. Although most teaching academics do no teaching out of session, many continue to be involved in 'teaching preparation. However, in addition to this, some academic teachers do continuing teaching, to students enrolled in open university programmes, summer university programmes and classes in continuing education (in MBAs, for instance). The CAP data do not tell us explicity about these things.

Moving on to an examination of research, Table 8.5 examines research during and outside teaching periods. During teaching periods, more laboratory-based academics spend more hours on research than academics in non-laboratory departments. During classes, about 61 % of laboratory-based academics spent 21 or more hours engaged in research, compared with 57 % of academics from non-laboratory departments. During non-reaching periods, there is little difference between the activities on academics from laboratory and non-laboratory departments, because teaching hours are mainly preparing for teaching or separate classes such as summer schools. About 83 % of non-laboratory-based academics and 82 % of their laboratory-based counterparts spent in excess of 11 h a week involved on research and related activities when classes were not in session.

As a corollary to analysis about teaching and research, Table 8.6 summarises CAP data for Finnish university academics to confirm that academics that spend

Table 8.5 Finnish university academic staff in laboratory and non-laboratory departments, by weekly hours spent on research (when classes are in session or not in session)

	Research hours: when classes are in session				Research hours: when classes are not in session			
	Non-laboratory (%)	Laboratory (%)	Total (%)	Total no.	Non-laboratory (%)	Laboratory (%)	Total (%)	Total no.
0 h	7.4	6.3	6.7	57	4.0	4.4	4.2	30
1–10 h	35.4	33.1	34.1	288	12.7	13.8	13.3	95
11–20 h	23.4	18.2	20.4	172	17.3	20.8	19.4	138
21–30 h	11.7	15.4	13.8	117	28.7	19.6	23.4	167
>30 h	22.0	27.1	25.0	211	37.3	41.4	39.7	283
Total	100.0	100.0	100.0	845	100.0	100.0	100.0	713

Source: CAP Survey 2007/2008

Table 8.6 Finnish university academic staff in laboratory and non-laboratory departments, by preference for teaching or research, average hours taught and number of papers published

	Non-laboratory		Laboratory		
Preference for →	Teaching	Research	Teaching	Research	Total
Academic staff (n)	96	292	96	448	932
Teaching:					
Average hours when teaching is in session	26.0	12.1	22.8	10.3	15.4
Average hours when teaching not in session	6.6	3.9	6.0	3.0	4.3
Publishing papers:					
No papers (n)	15	34	19	75	143
No papers (%)	25.9	12.1	24.4	17.5	16.9
1–3 (n)	28	110	34	148	320
1–3 (%)	48.3	39.3	43.6	34.6	37.9
>3 (n)	15	136	25	205	381
>3 (%)	25.9	48.6	32.1	47.9	45.1
Published one or more papers (n)	43	246	59	353	701
Published one or more papers (%)	74.1	87.9	75.6	82.5	83.1
Total (n)	58	280	78	428	844
Total (%)	6.9	33.2	9.2	50.7	100.0

Source: CAP Survey 2007/2008

more time engaged on teaching and related duties publish less than their research-oriented colleagues**.**

Among academic staff from non-laboratory departments, on average those with a preference for teaching taught 26.0 h per week during teaching periods, and 6.6 h per week when teaching was in recess. Those from laboratory-based departments taught slightly fewer hours per week, being 22.8 and 6.0 h, respectively. Staff with

a preference for research in non-laboratory departments spent 12.1 and 3.9 h per week, in teaching periods, and outside them, respectively. The equivalent group from laboratory-based departments also taught fewer hours: 10.3 h and 3.0 h, respectively.

These distributions are partly replicated in terms of research outputs. Taking 'the number of articles published in an academic book or journal' as a proxy for research productivity, we find that among Finnish university academics in non-laboratory departments with a preference for teaching, 74.1 % had published a paper in the past 3 years, compared with 87.9 % with a preference for research. Among laboratory-based academics, 75.6 % with a preference for teaching had published a paper, about the same proportion as with non-laboratory academics, but 82.5 % of laboratory-based academics with a preference for research had published. This proportion is 5.4 % points less than for equivalently interested non-laboratory academics. Perhaps this is an unexpected result, but the higher proportion of junior research-preferring academics in laboratory departments can explain this result.

Looking at other information from Table 8.6 it can be seen that 25.9 % of non-laboratory academics with a preference for teaching reported publishing no papers over the past 3 years, compared with 24.4 % of the laboratory-based group. Only 12.1 % of research-preferring academics from non-laboratory universities failed to produce a paper, compared with 17.5 % of their laboratory-based colleagues. The reason here might be the same as the one suggested earlier: that there is a higher proportion of junior academics in this category in laboratory-based departments. However it should be recalled that we have used paper publication as a surrogate for research activity, and of course, academics might be publish books, reports or producing other forms of research output.

Similar patterns pertain for academics that did publish an article in the past 3 years. Among those preferring teaching, 48.3 % of non-laboratory academics published between one and three papers, and 25.9 % had published more than three. These figures compare with 43.6 % and 32.1 % of laboratory-based academics with a teaching bent. Meanwhile, 39.3 % and 34.6 % of non-laboratory and laboratory-based academics that preferred research had published one to three papers, and 48.6 % and 47.9 %, respectively, had published more than three papers in the past 3 years.

The data and commentary in this section were intended to examine differences between laboratory-based and non-laboratory-based departments. In summary, it can be demonstrated that a higher proportion all academics in non-laboratory-based departments were senior academics, and that a lower proportion of men featured in non-laboratory departments. Further, the preference for teaching was higher in non-laboratory departments, with a reciprocal lower proportion of academics in these departments expressing a preference for research. From earlier analyses of the CAP data set it is known that in Finland, there is a tendency for a higher proportion of senior academics to claim a preference for teaching over research than is typically the case in other countries (Aarrevaara et al. 2011). The reason for this is the academic 'apprenticeship' system that pertains in Finland. Finnish universities employ as junior academics many PhD students, who primarily undertake the research necessary to complete their doctoral dissertation. Their preference in early career

stages, therefore, is for research, but these junior academics also undertake some teaching and other duties (Aarrevaara et al. 2011).

Salary differentials were not great, but laboratory-based academics earned more on average from their current university than non-laboratory counterparts in lower to middle ranges did. At higher salary ranges, non-laboratory academics earned more, on average. Academics from non-laboratory-based departments seemed more likely to have second employers, or to be self-employed, in addition to their 'your current university'.

8.3 The Theoretical Perspective: How Should We Define Satisfaction?

There is a large body of literature on the topic of job satisfaction in general, and a considerable amount on academic job satisfaction in particular. It is not our aim to discuss the pros and cons of the theories that abound in this area. Instead, for this chapter, we have decided to provide a theoretical basis that has been adapted from the work of Frederick Herzberg. His studies on job satisfaction are among the most referred to in the scholarly literature. Herzberg's multidimensional Two-factor theory from the late 1960s evolved from earlier developments of motivation theory in the 1950s (Herzberg et al. 1959). These developments verified that job satisfaction is not uni-dimensional, but that work related variables contribute to job satisfaction are separate from those to contribute dissatisfaction (Lacy and Sheehan 1997, p. 306).

Descriptions and interpretations of Herzberg's theory have been written up many times in the past. In summary, Two-factor theory suggests that the elements of work that generate positive satisfaction-intrinsic factors as 'motivators', such as recognition and responsibility or satisfaction with work itself (Iiacqua et al. 1995; Smerek and Peterson 2007, 248) are different from those elements that cause dissatisfaction if they are not present ('hygiene factors'). Hygiene factors (status, security and salary, for example), however, do not necessarily provide positive job satisfaction. According to this theory, in the context of academic staff, university managers must both ensure that employee dissatisfaction is avoided by maintaining adequate salaries and working conditions, but they must also enable a situation that will allow academics to glean job satisfaction with their jobs through challenge and responsibility. In considering questions from the CAP survey, we defined motivators to be matters relating to teaching or research orientation, perceptions of the job as a source of personal strain, and considering a job change, including consideration of alternatives to an academic career. Hygiene factors, therefore, relate to facilities, resources, support personnel, and perceptions about academic work, management and working conditions. Results of a study by Marston and Brunetti (2009) showed "the importance of professional over practical motivators, and of teaching and scholarship over service" (p. 323). Earlier studies have offered evidence that both

sides are important for job satisfaction. Academics' job satisfaction is higher if they respect their co-workers, their career is in some ways secure and they are satisfied with management and public policy (Bozeman and Gaughan 2011).

Herzberg provides an excellent theoretical underpinning against which CAP Survey data can be analysed. The role of managers is to reduce dissatisfaction caused by the various hygiene factors, but these do not necessarily increase motivation. The nature of CAP is that the questionnaire is that its focus is on Herzberg's so-called 'hygiene' factors, something it has in common with most surveys of its type. It is possible to analyse how elements of the work environment are important for job satisfaction. The hygiene factors may cause dissatisfaction if they are not satisfactional in respondents' minds. However, CAP also contained questions that permit an analysis based around the motivators that his theory alleges are the causes of job satisfaction.

On the other hand, just because a university's senior management improves the hygiene factors this action will not necessarily lead to increased job satisfaction, even if it stems the growth of job dissatisfaction. For the academic profession, the work itself and the nature of that work may be key factors in motivation. Therefore, academic work can play a key role in the level of academic job satisfaction. From the point of view of this paper, hygiene factors include facilities, resources, support personnel, and perceptions of academic work, management and working conditions. Similarly, we interpret the motivational factors as teaching/research orientation, perceptions of the job as a source of personal strain, and considering a job change, including consideration of alternatives to an academic career.

8.4 Satisfaction and Dissatisfaction by the Numbers

In the CAP survey, the overall satisfaction described by respondents varies according to a range of other variables. For example, looking at all responses to the 2007/8 CAP survey, about 75 % of occupants of senior-level positions described their overall satisfaction as very high or high, but only 60 % of their colleagues at other levels. This trend was also seen in Finland's reference countries during the Carnegie Survey at the beginning of the 1990s, as two-thirds of the European professors expressed their satisfaction with their job situation as a whole, whereas others were less satisfied (Enders and Teichler 1997 p. 353). (Finland did not participate in the Carnegie study). Similarly, 68 % of male respondents reported very high or high overall job satisfaction, but only 60 % of female respondents did so. The worldwide response of academics from all 18 of the original participating nations according to whether they are in a laboratory-based or non-laboratory-based academic unit does not show this variability. Between 64 and 65 % of academics in both discipline areas described their overall job satisfaction as very high or high.

8.4.1 (Dis)Satisfaction with Facilities and Services

According to Herzbergian logic, one set of factors that keep job dissatisfaction at bay relates to having good support and infrastructure to work with Fig. 8.2 provides a summary of the findings relating to perceptions about a range of facilities and services. As can be seen, academics tended to rate the quality of classrooms, technology for teaching, computer facilities and libraries fairly highly, whether those academics were in departments from laboratory-based or non-laboratory disciplines. Fewer academics held the view that research equipment and research support staff were excellent or good, and academics from non-laboratory disciplines had a lower opinion that their colleagues from laboratory-based disciplines.

Figure 8.2 shows that laboratory and non-laboratory academics evaluated facilities and services fairly similarly. There is a considerable gap between the two groups of academics in their rating of laboratories but perhaps that is because about half of the non-laboratory academics rated them as neither good nor bad. Non-laboratory academics also evaluated research equipment and research support staff lower than their colleagues from laboratory-based departments. It is reasonable to surmise from these results that facilities are rated highly by Finnish academics, but the relative paucity of teaching and research support could have a negative impact. It is also possible to interpret these results as an indication that many teachers do not want 'support' for their instruction. In Finland, freedom of teaching in the classroom is guaranteed by legislation, and from this perspective, it is perceived as being at the core of academic freedom.

8.4.2 (Dis)Satisfaction with Governance and Management

Another aspect of job dissatisfaction for academic staff also accrues from their perception of how good management and communication are, and whether there is a feeling that those at the top are supportive. In order to examine the difference in perception between laboratory- and non-laboratory-based Finnish academics, we plotted academics' responses to a range of questions about perceptions of activities and management at their institutions. The results are shown in Fig. 8.3, which clearly demonstrates that there is little difference in the perception of academic staff on some issues, whether they are laboratory- or non-laboratory-based. Neither group agreed that administrative processes were efficient, with only about 10 % of each strongly agreeing or agreeing with the proposition. However, in the main, staff from laboratory-based departments presented a more positive attitude than their non-laboratory colleagues. In particular, the laboratory-based academics seemed to feel they were supported by administrators (see Legend items 1 and 4–7, for example). There is a 5–7 % points variation between the two groups of academics on these issues (Fig. 8.4).

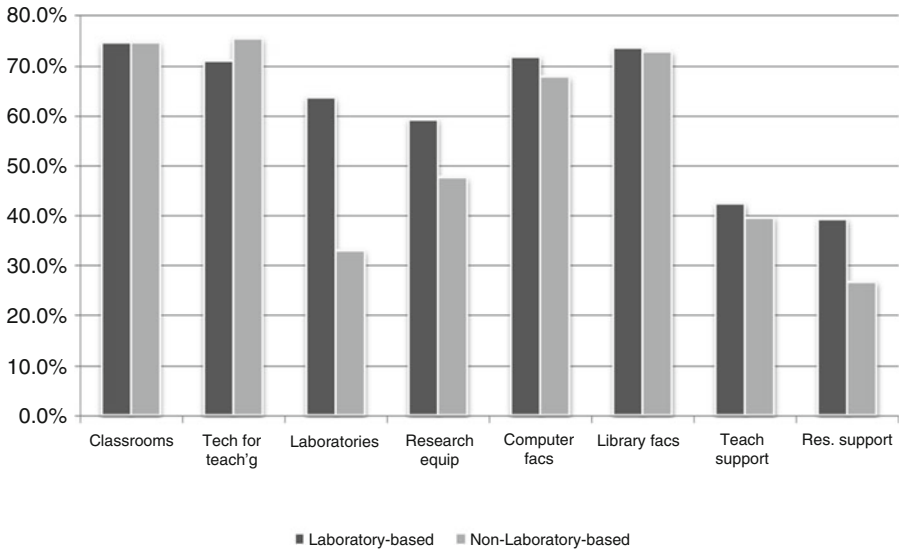

Fig. 8.3 Finnish university academic staff: perception of facilities and services (Source: CAP Survey 2007/2008; Question B3 (portions): At your institution, how would you evaluate each of the following facilities, resources, or personnel you need to support your work?)

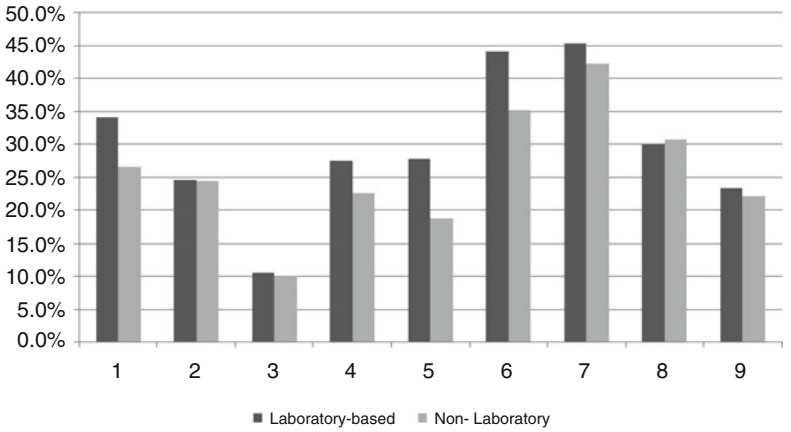

Fig. 8.4 Finnish university academic staff: perception of activities and management (Source: CAP Survey 2007/2008; Questions E4 and E5)
Lengend: For all collumns 'proportion of academics that strongly agreed or agreed that …'
1 there is good communication between management and academics (E4_2)
2 there is collegiality in decision making (E4_4)
3 administrative processes are efficient (Reverse coded) (E4_6)
4 administrative staff have a supportive attitude towards teaching (E4_7)
5 administrative staff have a supportive attitude towards research (E4_8)
6 top-level administrators provide competent leadership (E5_1)
7 I am kept informed about what is going on… (E5_2)
8 there is adequate academic staff involvement (Reverse coded) (E5_3)
9 the administration supports academic freedom (E5_5)

8.4.3 (Dis)Satisfaction with the Academic Profession

Tables 8.5 and 8.6 present two aspects of the attractiveness of the academic profession in Finland, a reflection on job satisfaction in Finnish universities. First, if a person is satisfied with their current position, they are less likely to seek employment elsewhere. This is an indication of positive motivation for academic work, and the tables permit a comparison between laboratory-based and other disciplines. In the context of Herzberg's Two-factor theory, these issues are at the centre of academic motivation and job satisfaction.

Table 8.2 summarises Finnish university academics propensity to 'look elsewhere'. The CAP survey inquired about whether academics had considered moving to management positions, other academic positions, domestic and international, or to positions outside academia. Few Finnish academics were attracted by management positions in their own institution: 9.5 % and 8.1 % for laboratory- and non-laboratory-based academics, respectively. Nearly 20 % of laboratory-based academics were attracted by academic positions at other domestic institutions, while 26.3 % looked abroad. Equivalent proportions of non-laboratory-based academics were 25.5 % and 22.5 % for domestic and overseas positions, respectively. Just over a half of laboratory-based and more than one-third of non-laboratory-based academics said that they'd considered moving to work outside higher education. It should not please senior university management to learn that over half of their scientific workforce had considered leaving the sector. It is perhaps an indication of the relatively low salaries paid to the highly qualified university workforce. One could also conjecture that the laboratory-based proportion is higher because academics in that section of the academic workforce have skills that are more easily transportable to non-academic work in all stages of academic career. Overall, 59.8 % of academics from non-laboratory departments and 68.4 % of their colleagues from laboratory-based departments had not considered making any major changes in their job (per responses to Question A14_5) (Table 8.7).

Table 8.6 further explores job satisfaction by asking academics whether they find that it is a poor time for young person to begin an academic career, or whether

Table 8.7 Finnish university academic staff in laboratory and non- laboratory disciplines. Number and proportion that had considered a major job change

	Non-laboratory	Laboratory	Total	Non-laboratory (%)	Laboratory (%)	Total (%)
To a managerial position	40	62	102	10.8	11.7	11.3
To an academic position- domestic	96	108	204	25.9	20.5	22.7
To an academic position- abroad	84	138	222	22.6	26.1	24.7
To work outside higher education	141	270	411	38.0	51.1	45.7

Source: CAP Survey 2007/2008
Question A14: 'Within the last 5 years, have you considered a major change in your job…'

they'd 'do it again', given the opportunity. It seems that 40.4 % of academics from laboratory-based and 58.1 % of academics from non-laboratory departments would 'not' recommend an academic career to the young. At the other end of the scale, 33.8 % of academics from laboratory-based disciplines disagreed or strongly disagreed with that statement, but only 18.1 % of those from non-laboratory departments. Around one-quarter of academics from all departments were neutral on the issue. Perhaps these revelations present another aspect of the opinions of the academic workforce that should be of concern to senior management.

Most academics, however, would become an academic, given their time over. This is the opinion of academics overall, it would seem. Only 18.2 % of laboratory-based and 17.4 % of non-laboratory based academics said they would not repeat their current career. Similarly, about 62 % of both laboratory and non-laboratory academics disagree with the statement and about one-fifth were neutral.

However, based on Finnish responses to the CAP survey, academic work presents its practitioners with considerable strain. Nearly half of both laboratory- and non-laboratory-based academics said that their job was a source of considerable personal strain, with a slightly higher proportion of non-laboratory staff expressing this opinion (Table 8.8).

Table 8.9 explores further the source of satisfaction/dissatisfaction by examining perceptions of influence. More laboratory-based academics, it would seem, feel that they have no influence at all at either the faculty or institutional levels. Similar proportions of academics lacked influence at the departmental level. At the other extreme, more non-laboratory academics than laboratory-based academics felt influential at the departmental level (46.9 % c.f. 41.3 %), and at the faculty level

Table 8.8 Finnish university academic staff in laboratory and non-laboratory disciplines. Responses to questions

	… this is a poor time for a young person to begin an academic career		… I would not become an academic again		… my job is source of considerable personal strain…	
	Non-laboratory	Laboratory	Non-laboratory	Laboratory	Non-laboratory	Laboratory
Agree/strongly agree	222	214	67	97	186	241
Neutral	91	137	80	104	109	167
Disagree/strongly disagree	69	179	239	332	91	125
Total	382	530	386	533	386	533
Agree/strongly agree	58.1 %	40.4 %	17.4 %	18.2 %	48.2 %	45.2 %
Neutral	23.8 %	25.8 %	20.7 %	19.5 %	28.2 %	31.3 %
Disagree/strongly disagree	18.1 %	33.8 %	61.9 %	62.3 %	23.6 %	23.5 %
Total	100.0 %	100.0 %	100.0 %	100.0 %	100.0 %	100.0 %

Source: CAP Survey 2007/2008
Question B5: 'Please indicate your views on the following….'

Table 8.9 Finnish university academic staff in laboratory and non-laboratory disciplines. Responses to Question E2: 'How influential are you, personally, in helping to shape key academic policies?'

	I am influential at the:					
	Departmental level		Faculty level		Institutional level	
	Non-laboratory	Laboratory	Non-laboratory	Laboratory	Non-laboratory	Laboratory
Influential or very influential	159	181	60	56	26	32
A little influential	135	200	86	116	75	80
Not influential	45	57	99	170	128	191
Total	339	438	245	342	229	303
Influential or very influential	46.9 %	41.3 %	24.5 %	16.4 %	11.4 %	10.6 %
A little influential	39.8 %	45.7 %	35.1 %	33.9 %	32.8 %	26.4 %
Not influential	13.3 %	13.0 %	40.4 %	49.7 %	55.9 %	63.0 %
Total	100.0 %	100.0 %	100.0 %	100.0 %	100.0 %	100.0 %

Source: CAP Survey 2007/2008

(24.5 % c.f. 16.4 %). However, similar proportions felt influential at the institutional level (11.4 % c.f. 10.6 %).

Looking at academic staff grouped in this way suggests that university management has a good grip on most of Herzberg's hygiene factors, but that perhaps things are a little shaky in terms of what motivates academics. Although there is overlap, it could be that even if hygiene-related job dissatisfaction is not too high, neither is motivational job satisfaction.

8.4.4 Overall Satisfaction, and Has It Got Better?

Irrespective of what academics have said about other aspects of their working life, the ultimate test of job satisfaction can be established by simply asking 'how would you rate your overall satisfaction with your current job? This is precisely what occurred in the 2007/8 CAP Survey. Over 70 % of non-laboratory academics rated their overall satisfaction as very high or high, compared with 66.8 % of laboratory-based academics. Fewer than 10 % of respondents rated their job satisfaction in negative terms. The closeness of the results on this matter suggest that in this regard at least, 'satisfaction' can be dealt with in a generic fashion, without the need to assume differences between laboratory and non-laboratory disciplines (Table 8.10).

However, the situation looks less positive when academics were asked to consider whether their profession had improved over time. The largest proportions of both laboratory-based and other academic staff believed there had been no change

Table 8.10 Finnish university academic staff in laboratory and non-laboratory departments: Overall job satisfaction

	Non-laboratory	Laboratory	Total	Non-laboratory (%)	Laboratory (%)	Total (%)
Very high	48	72	120	12.3	13.3	12.9
High	227	290	517	58.2	53.5	55.5
Neutral	83	128	211	21.3	23.6	22.6
Low	24	44	68	6.2	8.1	7.3
Very low	8	8	16	2.1	1.5	1.7
Total	390	542	932	100.0	100.0	100.0

Source: CAP Survey 2007/2008
Question B6: 'How would you rate your overall satisfaction with your current job?'

Table 8.11 Finnish university academic staff in laboratory and non-laboratory departments: have overall working conditions improved or declined?

	Non-laboratory	Laboratory	Total	Non-laboratory (%)	Laboratory (%)	Total (%)
Very much improved	22	30	52	5.7	5.6	5.7
Improved	67	122	189	17.5	23.0	20.7
Neutral	144	214	358	37.6	40.3	39.2
Deteriorated	101	123	224	26.4	23.2	24.5
Very much deteriorated	49	42	91	12.8	7.9	10.0
Total	383	531	914	100.0	100.0	100.0

Source: CAP Survey 2007/2008
Question B7

(40.3 and 37.6 %, respectively). However, more academics thought working conditions had deteriorated than thought they had improved. In the case of laboratory-based academics, 31.1 % thought things had deteriorated, but only 28.6 % thought conditions to be improved. For the non-laboratory group, the equivalent figures were 39.2 % and 23.2 %, respectively.

It is clear, therefore, that those in the laboratory disciplines see their lot as being better than academics in non-laboratory disciplines (Table 8.11).

8.5 Conclusions

In this chapter, we have discussed the factors affecting job satisfaction and dissatisfaction based on data from Finland's CAP Survey carried out in 2007/8. We examined the data through the framework of Herzberg's Two-factor theory. The Finnish CAP data show that academics in laboratory-based disciplines seem to perceive a

slightly better set of conditions than in academics from non-laboratory disciplines. Based on the variations between the two groups on issues associated with governance, such as leadership, atmosphere and communication, respondents from laboratory disciplines indicated a higher level of satisfaction with the corresponding respondents from non-laboratory disciplines. In terms of Herzberg, recognition, the work itself, responsibility, advancement, and growth are the factors which do not cause job dissatisfaction, even if academics find themselves in poorly managed areas.

Looking first at Herzberg's 'motivation' factors, the key motivation for job satisfaction is the work itself. If the work is not perceived as being at the appropriate level, we have assumed that the respondents will have considered major job changes within the last 5 years. The results also suggest that most university researchers and teachers are willing to consider alternative jobs. Respondents from laboratory disciplines seem to have more opportunities to leave their universities, and to work in other labour market sectors.

The positive attitude to change by academics from the laboratory disciplines is also reflected in the smaller proportions that had considered a change to another academic post in Finland (20.5 % compared with 25.9 % for academics from non-laboratory disciplines), an indication that these respondents are satisfied with their existing departments. However, more laboratory-based academics had considered a move abroad (26.1 %, compared with 22.6 % for non-laboratory academics), but that might indicate higher potential mobility for academics in science, medicine and engineering, compared with those in disciplines such as law, education, the humanities and the social sciences. Perhaps these 'chalk and talk' disciplines (when it comes to teaching) are less transportable. However, just over half of laboratory-based academics had considered a move out of academia, compared with 38.0 % for academics from non-laboratory disciplines. Of course, this might also indicate the higher transportability of technology-related academic work. Many laboratory-based academics could find work outside universities, such as in independent research institutes, or other private sector enterprises.

Still, 40 % of respondents in laboratory disciplines considered now to be a poor time to begin an academic career. The corresponding figure for non-laboratory disciplines was 58.1 %. However, there was relative agreement between laboratory and non-laboratory academics with respect to the suitability of an academic career. Similar proportions agreed that that they would not start an academic career, if they had their time over (18.2 % and 17.4 % for laboratory and non-laboratory academics, respectively), with 20 % of both responding neutrally, and just over 60 % of both groups disagreeing or strongly disagreeing. Respondents in laboratory-disciplines are also considering managerial posts or change to academic post in another country more often than in other disciplines.

Likewise, similar proportions of respondents found their work to be a source of considerable personal strain, but slightly fewer laboratory-based academics declaring this to be so (45.2 % c.f. 48.3 %). The evidence suggests two motivation-related reasons, which explain the results in this respect. Laboratory work disciplines employed in groups of more than others, and they focus on research (work as itself) more than the others. The higher number of junior academics partly explains these results.

In this chapter, we make conclusions relating to Herzberg's 'hygiene' factors and the CAP Survey responses by Finnish academics. As described earlier, a number of education and ICT investments have been carried out at Finnish universities. It is therefore not surprising that the respondents are very satisfied with the computer and library facilities as well as in teaching technology (ICT in educational use), and their classrooms. Respondents from laboratory-based departments are more satisfied than other respondents with the facilities and service conditions that have come about in the broad areas of national funding programmes. In the CAP questionnaire, these included laboratories, research equipment, computer facilities and research support staff. There were no significant differences regarding attitudes to classrooms or the library facilities, which fall under general service and infrastructure. These are part of universities' regular development policy. Still, general attitudes to improving of working conditions are slightly more positive from academics in laboratory-based disciplines (28.6 %) than those in other disciplines (23.2 %).

In addition, in the matters concerning management, the staff within laboratory-based departments indicated more positive attitudes than their counterparts in non-laboratory departments. These include management and communication between academics, support from non-academic staff on research and teaching, respect for top-level administrators' competent leadership, and the possibility of being informed what is going on in respondents' higher education institutions. There were no meaningful differences in attitudes concerning collegiality in decision making and the administration's support of academic freedom. These are matters of universities' autonomy and do not receive direct financial support from any national programme.

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