Exploring the Link between the Humanitarian Logistician and Training Needs

Abstract

Purpose – The aim of this paper is to evaluate job profiles in humanitarian logistics, and assess current task priorities in light of further training and educational needs.

Design/methodology/approach – The paper presents the findings from a survey among humanitarian logistics practitioners and compares these to other studies in this area. It uses econometric models to evaluate the impact of managerial responsibilities on training needs, usage of time and previous training.

Findings – The results show that the skills required in humanitarian logistics seem to follow the T-shaped skills model of Mangan and Christopher when looking at the areas of training wanted and time usage.

Research limitations/implications – The survey respondents, being members of the Humanitarian Logistics Association, may be more interested in developing the humanitarian logistics profession than other populations.

Originality/value – This paper offers an insight in the specific skill requirements of humanitarian logisticians from members of the Humanitarian Logistics Association and offers an understanding of the types of skills that are linked to managerial responsibilities. The paper also establishes a link between logistics skill models and career progression overall.

Keywords: Career path, humanitarian logistics, logistics skills, training, education

Paper type Research paper

Exploring the Link between the Humanitarian Logistician and Training Needs

Introduction

The field of humanitarian logistics has developed tremendously in the recent both in terms of practice and research (Kovács and Spens, 2011a and 2011b). Since a first evaluation of the status of the discipline by the Fritz Institute (Thomas and Mizushima, 2005) that pinpointed the lack of logistics training, numerous certification and education programmes have been established (see Kovács and Spens, 2011b for a list, although new programmes are established every year).

In spite of all these efforts and improvements, however, the extent to which these have contributed to humanitarian organisations recognising the strategic importance of logistics and perhaps even more importantly, of supply chain management is still unclear. At the same time, the importance of logistics is not to be underestimated in the humanitarian context if one considers its cost: for example, Van Wassenhove (2006) attributes 80% of the cost of a humanitarian operation to logistics (including procurement cost). The lack of "logistics in the boardroom" is not unique to humanitarian organisations and has previously been criticised in an IBM White Paper (Taylor, 2006). Concurrently, however, Abrahamsson (2008) showed how top management's understanding of logistics contributes to the success of companies, which are often used as the benchmarks of operational and even financial excellence in their respective industries.

Humanitarian supply chains have been described as "fully flexible" and "most agile" (Oloruntoba and Gray, 2006; Hughes, 2009), and indeed they have to be, particularly in the response to sudden onset disasters. The logistics and supply chain personnel working within humanitarian organizations fulfil a critical role in this regard, and require a set of skills and competencies that matches the environment they work in. Understanding the required competencies, and how they vary throughout the course of their career, is therefore essential to designing education and training programs that meet the needs of the humanitarian sector personnel. To date, however, there is little understanding of the recruitment, training, retainment and deployment of humanitarian logisticians (Overstreet *et al.*, 2011).

The aim of this paper is thus to evaluate job profiles in humanitarian logistics, and assess current task priorities in light of further training and educational needs. We explicitly examine two interrelated research questions: i) how the desired skills and competencies of humanitarian logisticians depend on their responsibilities; and ii) how humanitarian logisticians split their time across various activities.

The remainder of this article is structured as follows: first we review extant literature that has examined the logistics skills needed in the humanitarian context, and we use this to develop testable research hypotheses. We then describe the methods used to test these hypotheses based on data collected through a survey among humanitarian logistics practitioners. We proceed with a discussion of key findings and their implications for the content and role of training and education programs. We end with conclusions for training and education in humanitarian logistics, and suggest avenues for further research.

Logistics skills in the humanitarian context

Several studies have investigated the logistics skills that are needed in the humanitarian context. Thomas and Mizushima (2005) were first in stating more attention should be paid to the development of logistics skills, and to the professionalization of humanitarian logisticians. Their call for more attention has since been followed up in a number of studies devoted to skills in humanitarian logistics: Swords (2007) carried out an interview study for People in Aid that develops competency frameworks in the humanitarian sector – though it does not explicitly focus on logistics alone. Nonetheless, this People in Aid study emphasises that, beyond the typical management skills, there is a greater need for e.g. pressure tolerance and HRM (especially team building and management) skills needed in the humanitarian sector. CILT UK (2008) followed this up with a survey among humanitarian practitioners that investigates the need for various areas to be included in humanitarian logistics training. Their results were subsequently implemented in the development of CILT's certification programmes (in humanitarian logistics, humanitarian supply chain management and medical logistics) that they offer on behalf of the Fritz Institute. Their results show that, beyond pure "logistics skills", humanitarian logisticians also need to know about medical logistics, donor relations and compliance (incl. fundraising), customs clearance, construction and compound management, and inter-agency co-ordination.

Later, Kovács and Tatham (2010) compared the skills needs of business, military and humanitarian logisticians in a further survey. Their results highlight (not all that surprisingly) that marketing was not among the otherwise typical management skills needed by humanitarian logisticians. Overall, there was a stronger emphasis in the humanitarian logistics group on technical, "core" logistics skills such as warehousing, transportation management etc., but also leadership and supplier relationship management skills stood out as highly important in the humanitarian sector. This is in contrast to the studies by Walker and Russ (2010) on the professionalization of the humanitarian sector overall that again emphasise the need for skills in the areas of needs assessment, security and safety, monitoring and evaluation, and particular relief item and mandate-based areas such as e.g. water and sanitation.

The latest, Kovács *et al.* (2012) study analyses job advertisements for humanitarian logisticians and suggests a number of skills are needed in the humanitarian context that expands on previous logistics skills models from literature. In this, they extend the typical T-shaped model as propagated in the business logistics skills literature (see e.g. Mangan *et al.*, 2001; Mangan and Christopher, 2005) with a further set of contextual skills. Apart from contextual skills, logistics skills models typically contrast general management skills that are needed in breadth to technical (sometimes called "functional") logistics skills that are needed in depth. Kovács *et al.* (2012) confirm Kovács and Tatham's (2010) findings of the relative importance of functional logistics skills in humanitarian logistics. In their study, inventory management and purchasing are ranked equally as number one skills, followed by training (and the training of others), fleet management, and transportation management. Overall, their study results in a ranking of significant skills but also in the development of skills hierarchies (e.g. fleet management being on a lower level than transportation management), and groupings.

The above studies shed some light on the importance of various skills, and skill sets, for humanitarian logisticians. That said, even the authors of these studies themselves call for more understanding not just of the ranking of skills but on the actual daily job profile of humanitarian logisticians. Therefore our study follows up their endeavours with more detailed questions on how humanitarian logisticians spend their time across various activities.

However, with the exception of the CILT UK (2008) study, prior research does not address the question of which skills training and education programmes should focus on. The CILT UK (2008) study laid the foundation for developing certification programmes in humanitarian logistics. These are particularly important for either logisticians entering the humanitarian field, or current humanitarians being trained on logistics-specific questions. What is left unclear, however, is how humanitarian logisticians' career progressions translate into further training and education needs.

Research hypotheses

Logistics has adopted the T-shaped skills model from engineering literature and roughly differentiates between broad general management vs. in-depth technical skills needed on the job. Building on this model, Mangan and Christopher (2005) suggest a trajectory from logisticians to supply chain managers, claiming that supply chain managers, whom they see positioned on a higher career level than logisticians, need more general management skills. We draw upon Mangan and Christopher's (2005) T-shaped skills model to argue that the same situation applies with humanitarian logisticians, where a move up in the career ladder, which comes with an extension of responsibilities, would lead to a shift in the skills needed for the job. In other words, rather than focusing on technical logistics skills, with more responsibility there is a shift towards more focus on general management skills. Figure 1 illustrates this hypothesis in relation to the T-shaped skills model.

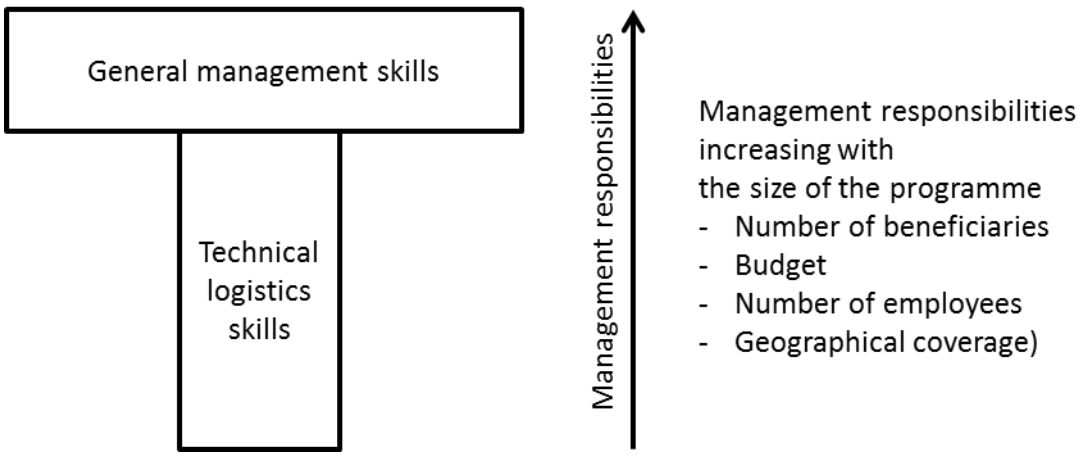

Figure 1: Skill focus in relation to management responsibilities

We propose four ways of measuring an increase in management responsibilities, which are set in the context of a humanitarian response programme; (1) the number of beneficiaries in the programme, (2) the programme budget, (3) the number of employees (humanitarian workers) in the programme, and (4) the geographical coverage of the programme. The latter can also be measured as employees in the field vs. in headquarters. For each of these characteristics, it is expected that the larger the programme is, the more the logistician will have, or will want to acquire, horizontal (general management) skills. We expect that professional development choices should reflect the importance of acquiring more relevant skills of higher hierarchy and, depending on factors related to their responsibilities, we also expect that specific humanitarian logistics skills might differ depending on managerial responsibilities. Our first set of hypothesis looks at how managerial responsibilities drive the need for further training:

> H1a: The size of the programme influences the professional development choices; individuals working in larger programs in terms of beneficiaries are expected to want broader general management rather than technical logistics skills
>
> H1b: The size of budget influences the professional development choices; individuals managing larger budgets are expected to want broader general management rather than technical logistics skills

H1c: The number of employees for which the logistician is responsible influences the professional development choices; individuals managing more subordinates are expected to want broader general management rather than technical logistics skills

H1d: Field level influences the professional development choices; individuals in higher field positions are expected to want broader general management rather than technical logistics skills

Notwithstanding the increasing knowledge about the relative significance of particular (humanitarian) logistics skills and even the link between such studies and education program that should support the career paths of humanitarian logisticians (e.g. the CILT, 2008 study, or in business logistics a comparable study by Mangan *et al.*, 2001), there is little understanding of how humanitarian logisticians split their time "on the job" compared to perceived skills importance (CILT, 2008 and Kovács and Tatham, 2010), how this differs from HR requirements (Kovács *et al.*, 2012), and how this varies across organizations and levels of the organization.

Not only should managerial responsibilities influence the demand for training, they should also be reflected in the current usage of the time by the logistician. Indeed experienced managers might be working more on strategic and tactical levels issues in the country, whilst less experienced lower level managers that might be preoccupied with operational day to day problems. Thus the second set of hypotheses centres on the fact that the size of a programme, its budget, the number of employees and the field level will all play a role in determining how logisticians split their time among different tasks. We expect that the percentage of time spent by humanitarian logisticians on specific work activities can be explained by their managerial responsibilities and we also expect that specific humanitarian logistic activities might differ depending on managerial responsibilities:

H2a: The size of the programme measured by the number of beneficiaries influences the areas of involvement, logistician with bigger programmes are expected to spend more time on broader general management activities

H2b: The size of budget influences the areas of involvement with higher budget linked to broader general management activities and smaller budget linked to technical logistics activities

H2c: The number of employees for which the logistician is responsible influences the areas of involvement with a high number of employees linked to broader general management activities and a low number of employees accounting for core and technical logistics activities

H2d: Field level influences the areas of involvement with higher field levels involving broader general management activities compared to local field levels

The above hypotheses were tested using primary data collected through a survey among humanitarian logistics practitioners.

Methods

Previous skills studies in humanitarian logistics were based on interviews (Swords, 2007), surveys (CILT UK, 2008, Kovács and Tatham, 2010), a combination of interviews, focus groups, and surveys (Walker and Russ, 2010) or content analyses (Kovács *et al.*, 2012). Each of these methods have their advantages and inconveniences. Surveys offer perception measures, and interviews more in-depth insights and explanations, whereas a content analysis could provide measurements for requirements on the job. However, neither of the latter two options is particularly well suited for determining what humanitarian logisticians actually do on the job. Hence we followed up with a survey that focuses on time splits relating to the job rather than ranking perceptions.

Questionnaire design

Building on previous studies on logistics skills, we designed a survey to capture the actual job profiles of humanitarian logisticians. The questionnaire was developed jointly between researchers and representatives of the Humanitarian Logistics Association (HLA). HLA is a community of practice of humanitarian logisticians that describes themselves as follows: “The

HLA is an individual membership association for humanitarian logistics professionals committed to increase humanitarian logistics effectiveness" (HLA, 2013).

The questionnaire addressed five primary areas: (1) organization and project information, (2) personal information, (3) the logistician's work, (4) their perceptions on a number of key issues, and (5) their suggestions to improve logistics performance and their own professional development. In contrast to other surveys that measured the perceived importance of various skills (e.g. Kovács and Tatham, 2010), our survey was designed to complete the picture of what humanitarian logistics and supply chain personnel actually do "on the job". In this we complement previous literature on the topic and are able to contrast perceptions with actual workload measures.

HLA piloted the questionnaire in 11 telephone interviews with selected HLA members that included a mix of the target population, ranging from logistics officers in the field to logistics directors in headquarters. These members for the pilot test were selected following two criteria: i) they should have a significant amount of experience in (and therefore knowledge of) the humanitarian logistics field to be able to assess the face validity of the questions; ii) collectively, they should be representative of the target population. The piloting resulted in changes in formulating some of the questions and, most importantly, in adding questions regarding improvements to logistics performance and priorities for professional development. Respondents were asked to answer the questionnaire considering the position currently held. The resultant questionnaire can be found in Appendix A.

Data collection

The questionnaire was administered online to all (ca. 1200) HLA members between February and March 2012, with one reminder sent out. 258 respondents fully completed the online survey. Of these, 57 respondents were excluded from the analysis as they either worked in a private company or their job title was unrelated to logistics and/or supply chain management. The filtered respondents numbered 201, which gave a response rate of roughly 17%. Whilst this is a good sample from the HLA (and is higher than most response rates in humanitarian logistics

surveys), one needs to note that HLA members may be more open for improving the sector overall; and this disposition may impact on survey results.

We checked for non-response bias by testing for differences between those respondents who fully answered the questionnaire and respondents who quit before completing the survey. The following discriminating variables were used, none of which resulted in statistically significant differences between the two groups at the 5% level: gender ($p = 0.72$), yearly budget under the respondent's control ($p = 0.23$), number of people working under the respondent's responsibility ($p = 0.12$), number of years of experience with the organization ($p = 0.19$), organization size ($p = 0.29$), level of the organization at which the respondent works (field vs. non-field, $p = 0.18$), date of first access to the survey ($p = 0.73$), questionnaire completion time ($p = 0.90$). Statistically significant differences between respondents and non-respondents were detected only with respect to two variables: job title ($p < 0.01$) and training ($p < 0.01$). The sample of respondents contains a higher percentage of logisticians and supply chain specialists as well as a higher percentage of people with formal training in logistics compared to the sample of non-respondents. This suggests that most of the non-respondents quit the survey when they realized they did not belong to the specific population (logisticians and SC managers) targeted by the research.

Respondent demographics show that we have managed to reach out to a variety of different positions at different levels of the organization – from warehouse managers in the field to HQ supply chain managers.

Table 1: Respondent demographics

Demographic categories	0 to 2 years of experience	2 to 4 years of experience	4 to 6 years of experience	6 to 8 years of experience	8 to 10 years of experience	10 years of experience and higher	Total geographical location
HQ	8	11	6	4	4	11	44
Region	5	0	1	2	2	1	11
Country	40	12	16	5	4	7	84
Field	24	7	8	10	3	6	58
Other	0	0	1	2	0	1	4
Total category of experience	77	30	32	23	13	26	201

As Table 1 illustrates, respondents were less experienced overall, though this is counterbalanced by the fact that "experience" here referred to the time spent in the organisation a respondent was employed in, not experience with humanitarian logistics overall. On the other hand, there is a good balance between logisticians working in the field and in headquarters.

Operationalization of variables and data analysis

The empirical methods used to test the two sets of hypotheses reflected the nature of the dependent variables and covariates obtained through the survey. Table 2 summarizes the independent as well as the control variables used in the study. These are both a mix of scale variables and dichotomous variables. The dependent variables for the first set of hypotheses (desired skills) are dichotomous variables obtained by asking the survey participants: "Which of the following areas are the most important to your professional development over the next 2 years? Please, select 3 topics maximum" (see questionnaire in the appendix). For the second set of hypotheses the dependent variables is an interval scale obtained by asking survey participants: "What percentage of your working time do you spend on the following areas?"

Table 2: Summary of independent variables and control variables

	Questionnaire item	**Type of variable (scale vs. dichotomous)**
Independent variables reflecting programme size		
Number of beneficiaries in the programme	What is the estimated number of beneficiaries in the program (s) that you work for?	Scale with given range of groupings
Budget	What is the yearly budget you directly control?	Scale with given range of groupings
Number of employees	How many people work under your responsibility?	Scale with given range of groupings
Geographical coverage	At which level of your organization do you work?	Dichotomous: field, country, region, headquarters
Control variables		
Job title	What is your job title?	Categorized into supply vs. logistics
Type of organisation	What type of organization are you working for?	Dichotomous variable
Experience with the organisation	How long have you been working for your organization?	Number of years (not pre-categorised)
Disaster phase	What type of program is your organization managing? Please, select all relevant categories	Dichotomous variable

Different econometric models were used for the two sets of hypotheses based on the nature of the dependent variable. Hypotheses *1a* to *1d* were tested by means of a logistic regression model to take into account the dichotomous nature of the variables. Categories of "desired training" with

fewer than 20 positive events (i.e. reporting, leading meetings, interpersonal conflict resolution, supervising teams and relationship management) were excluded from further analysis. We controlled for variations in job and organisational characteristics as well as for variations regarding phases of disaster relief (see control variables in the results). The latter was deemed particularly important due to a variation in emphasis of job requirements depending on whether a programme was carried out in relation to preparedness, response, or reconstruction (Tomasini and van Wassenhove, 2009), which is also shown in the differences in job requirements between the jobs related to the Haiti earthquake and others (Kovács *et al.*, 2012). Goodness of fit was tested for with the Cox and Snell pseudo R^2, which has a maximum value of 0.75.

Hypothesis 2a to 2d were tested by means of a linear regression because the independent variable was measured via an interval scale reflecting a percentage of time. The category of time usage known as "general management" was removed since its adjusted R^2 was negative – although this does not apply to other skills pertaining to the group of general management skills. We used the same control variables as for testing H1 (i.e. to take into account other organizational and job characteristics). Taken together, the hypotheses account for a total of 17 equations: 8 related to the skills required and 9 to the time spent on the job. This allowed testing for a total of 17 dependent variables with either a logistic regression to take into account the dichotomous nature of the variable or with a linear regression for the percentage of time spent. Table 3 shows the dependent variables remaining after the removals explained above.

Table 3: Dependent variables for each hypothesis

H1a-d dependent variables: logistic regression	**H2a-d dependent variables: linear regression**
Human resources Management	Human Resources Management
Accounting / Finance	Programme management
Technical logistics training	Security Management
Logistics Planning and Management	Transport and Fleet Management
Security training	Fuel Management
Donors policy	Supply Management
Project Management	Water and Sanitation Management
Information Systems For logistics	Construction Management
	Telecoms Management

Discussion of findings

In the following, we will focus the on findings related to the two hypotheses, first discussing training needs in light of professional development priorities, then turning to a discussion of current job profiles in humanitarian logistics.

Training needs in light of professional development priorities

Respondents were asked to choose up to three areas that they considered most important to their professional development over the next two years. The top four areas were ‘Logistics Planning & Management’ which was chosen by 70% of respondents, followed by ‘Information System for Logistics’ with 50%, ‘Technical Logistics Training’ with 43%, and ‘Project Management’ with 34%. Overall, this supports Kovács and Tatham’s (2010) findings of a focus on technical logistics skills in humanitarian logistics. Table 4 summarises the results from the logistic regression model that was used to test Hypothesis 1.

Table 4: Professional development priorities over the next two years

Covariates for each logistic regression	**Dependent variable for each logistic regression**							
	Human resources Management	**Accounting / Finance**	**Technical logistics training**	**Logistics Planning and Management**	**Security training**	**Donors policy**	**Project Management**	**Information Systems For logistics**
Hypothesis 1								
H1a:Estimated number of beneficiaries in the programme	0.726***	1.078	1.036	1.054	0.700***	1.324	1.028	1.043
H1b:Yearly budget controlled	0.95	1.171	0.912	0.886	0.76	1.097	0.984	1.102
H1c: Amount of people working under responsibility	2.340	0.765	0.620***	0.929	2.408***	0.798	1.000	1.005
H1d: Organization level: field	2.08E+08	0.264	0.656	1.750	0.149	1.033	1.014	0.18
H1d: Organization level: country	1.44E+08	0.209	0.826	1.852	0.071	0.339	2.243	0.174
H1d: Organization level: region	3.26E+08	0.496	0.34	3.148	0.233	0.503	2.103	0.178
H1d: Organization level: headquarters	5.06E+08	0.046***	0.314	2.197	0.548	0.307	1.073	0.234
Control variables								
Job title: logistics	2.45E+08	3.35E+11	0.656	0.248	2.755	1.826	2.279	0.39
Job title: supply	3.24E+08	1.35E+11	0.422	0.22	1.606	2.026	2.606	0.611
Time spent working for the organization	1.050	1.132***	0.945	0.975	0.876	0.984	1.032	0.924***
Disaster phase: disaster prevention and preparedness	0.565	0	2.139	6.25E+08	3.635	1.615	0.504	0.802
Disaster phase: reconstruction and rehabilitation	0.225	0.671	2.455	0.503	2.244	2.949	0.343	1.045
Disaster phase: reconstruction and rehabilitation and disaster prevention and preparedness	0.317	0.597	6.69E+09	0	0	0	1.97E+09	2.63E+08
Disaster phase: emergency response	0.151***	2.808	1.807	0.566	0.603	0.871	0.524	0.299
Disaster phase: emergency response and disaster prevention and preparedness	0.346	0.873	2.788	0.483	0.314	2.007	0.459	0.485
Disaster phase: emergency response and reconstruction and rehabilitation	0.234	1.964	3.480	0.899	1.186	3.495	0.157***	0.481
Disaster phase: all phases	0.427	1.540	1.329	0.512	2.241	3.806	0.206***	0.988
Organization: Red Cross	2.358	0.253	0.57	2.275	0	0	1.555	0.821
Organization: United Nations	0.856	0.271	1.294	1.643	0.525	0.246	0.67	1.283
Constant	0	0	5.048	11.185	0.397	0.062	0.36	18.822
Cox & Snell R^2	0.133	0.13	0.132	0.095	0.143	0.134	0.101	0.109

* 0.000; **0.01 ;***0.05; excluded: () less than 20 events for this dependent variable

For hypothesis H1a, an increase of one unit of number of beneficiaries increases the odds ratio of wanting human resources management training by 0,726 and security training by 0,700 controlling for all other variables (all odds ratios*** with p<.01). H1b is not supported by the analysis, hence we conclude that the size of budget controlled does not explain any preferences for professional development. H1c shows that an increase of one unit of the number of people working under the logistician's responsibility increases the odd ratio of wanting technical logistics training by 0.620*** and security training by 2.408*** (controlling for all other variables). For H1d only the organizational level of headquarters is significant and an increase of one unit will increase the odd ratio of wanting accounting/finance training by 0.046***.

The control variable job title was not significant. However, an increase in experience on the job is linked to higher preferences for training in accounting and finances (odds ratio 1.132***) and logistics information systems (.924***). Which disaster phase a logistician worked in also had an effect. Emergency response was linked to human resource management (0.151***), while those working in emergency response as well as reconstruction and rehabilitation fields showed a preference for training in project management (0.157***), which was also the case for those working in all phases of disaster relief (preference for training in project management with 0.206***). The type of organization is not significant in explaining the training that was wanted. Overall, since job title and type of organization are not significant, it seems that the link between the skills wanted and the logistician's profile are centred on his/her experience in the organizations and the characteristics of the activities he/she is currently involved in (i.e. number of beneficiaries, number of employees, and geographical coverage of the programme). All these characteristics could be seen as indicators of the seniority of the logistician which would affect the skills they want depending on their level of responsibilities.

Job profiles in humanitarian logistics

Previous research has looked into the need for professionalization in humanitarian logistics, and logistician's own perceptions of which skills are needed for their job. In contrast, we are evaluating how humanitarian logisticians spend their time on the job, in other words, weighing the importance of skills not in terms of perceived priority, but in time spent. Time spent on the

job is a good measure for training and education requirements in order to prepare a person for the actual requirements of the job.

From a sheer ranking perspective, respondents spent most time on “supply management”, followed by “general management” and “transport and fleet management”. Supply management here included both aspects of purchasing and inventory management, which are the two equal top ranked activities in the Kovács *et al.* (2012) study, with number three in their study being “training of others” followed by fleet management and transportation management. In conclusion, the contents of job advertisements conform to the activity split of our respondents surprisingly well.

Hypothesis 2a to 2d again differentiate between job profiles in relation to various managerial responsibilities. Table 5 summarises the results from our linear regression model.

Table 5: Humanitarian logistician's time split on the job

Covariates for each linear regression	**Dependent variables for each linear regression**								
	Human Resources Management	**Programme management**	**Security Management**	**Transport and Fleet Management**	**Fuel Management**	**Supply Management**	**Water and Sanitation Management**	**Construction Management**	**Telecoms Management**
Hypothesis 2									
H2a:Estimated number of beneficiaries in the programme	-0.021	-0.072	-0.097	0.110	0.005	0.032	0.090	0.101	-0.059
H2b:Yearly budget controlled	0.111	0.2***	-0.055	-0.144	-0.079	-0.113	0.043	0.074	-0.082
H2c: Amount of people working under responsibility	0.271**	-0.023	0.187***	-0.055	-0.007	-0.072	0.094	0.055	0.044
H2d: Organization level: field	0.186	0.170	-0.118	0.101	-0.266	-0.272	-0.315	-0.383	-0.079
H2d: Organization level: country	0.093	0.196	-0.035	0.079	-0.495**	-0.183	-0.276	-0.343	-0.027
H2d: Organization level: region	0.077	0.102	-0.080	-0.052	-0.190	-0.125	-0.141	-0.221	0.026
H2d: Organization level: headquarters	0.309	0.199	-0.184	0.137	-0.624**	-0.224	-0.209	-0.482***	0.061
Control variables									
Job title: logistics	0.213	-0.283***	0.000	-0.251	-0.090	0.063	0.009	0.182	-0.044
Job title: supply	0.169	-0.231	-0.165	-0.324***	-0.146	0.409**	-0.023	0.143	-0.261
Time spent working for the organization	0.067	0.008	-0.079	-0.070	-0.095	0.071	-0.017	-0.022	-0.047
Disaster phase (DP): disaster prevention and preparedness	0.094	0.021	-0.021	-0.050	-0.010	-0.053	0.215**	0.015	-0.008
DP: reconstruction and rehabilitation	0.087	-0.006	0.095	0.002	-0.041	-0.035	-0.141	0.020	-0.026
DP: reconstruction and rehabilitation and disaster prevention and preparedness	-0.032	0.031	-0.063	-0.034	0.022	0.048	0.378*	0.128	-0.066
DP: emergency response	0.090	-0.061	-0.026	-0.096	0.000	-0.014	-0.085	-0.027	0.013
DP: emergency response and disaster prevention and preparedness	-0.045	-0.099	0.052	-0.082	-0.041	0.069	0.013	-0.042	0.064
DP: emergency response and reconstruction and rehabilitation	0.076	-0.078	-0.017	-0.104	0.014	0.048	-0.024	-0.005	0.020
Disaster phase: all phases	0.178	-0.121	0.021	-0.139	-0.010	0.017	-0.094	-0.006	0.033
Organization: Red Cross	-0.023	0.136	-0.048	0.159***	0.007	0.032	-0.064	-0.121	-0.149
Organization: United Nations	-0.091	0.213**	-0.130	0.087	0.000	0.103	-0.033	-0.103	-0.122
Constant	-1.628	1.145	1.485	2.670	3.464	2.713	1.134	1.085	1.510
R Square	0.17	0.125	0.178	0.138	0.163	0.224	0.281	0.145	0.115
Adjusted R Square	0.083	0.033	0.092	0.047	0.075	0.142	0.205	0.055	0.022

* 0.000; **0.01 ;***0.05;

The test of our second set of hypotheses produced the following results. Regarding H2a, the estimated number of beneficiaries in the programme does not significantly impact on the task allocation distribution of humanitarian logisticians. In contrast, with budgetary responsibilities (H2b) came an increase in the time spent on programme management (0.2***). At the same time, an increased number of employees (H2c) significantly increases the time spent in HR management (0.271**) and security management (0.187**). Geographical coverage (H2d) also plays a role as both country level (-0.495**) and headquarters level (-0.624**) employments reduced the involvement in fuel management, while those working in headquarters are also significantly less involved in construction management (-0.482***).

As for control variables, job title is sometimes significant with the title of "logistics" bringing a reduction (-0.283***) of time spent on programme management, and the title job "supply" a reduction of time spent on transport and fleet management (-0.324***) but (obviously) an increase in the time spent in supply management (0.409**). Experience was not significant for time distributions. Interestingly, spending time with water and sanitation related activities was significant for people working in disaster prevention and preparedness (0.215**), and those working in preparedness as well as reconstruction and rehabilitation (0.378*). The type of organization also explains time spent on specific tasks with respondents working for the Red Cross significantly spending more time in transport and fleet management (0.159***) and those working for the UN spending more time on programme management (0.213**).

Furthermore, previous studies (Walker and Russ, 2010; CILT, 2008; Kovács *et al.,* 2012) have found that security management is an important skill in the humanitarian context, as a clear differentiation from the business context. Our findings support this, but offer a more nuanced view, in that time spent on security management significantly increases with the number of employees in a programme. This could mean that security management would be an overall broad management issue for managers who are responsible for a large number of employees. Also, it seems that skills needed in water and sanitation are more related to the types of programmes and phases of disaster relief than having any relation to management responsibilities.

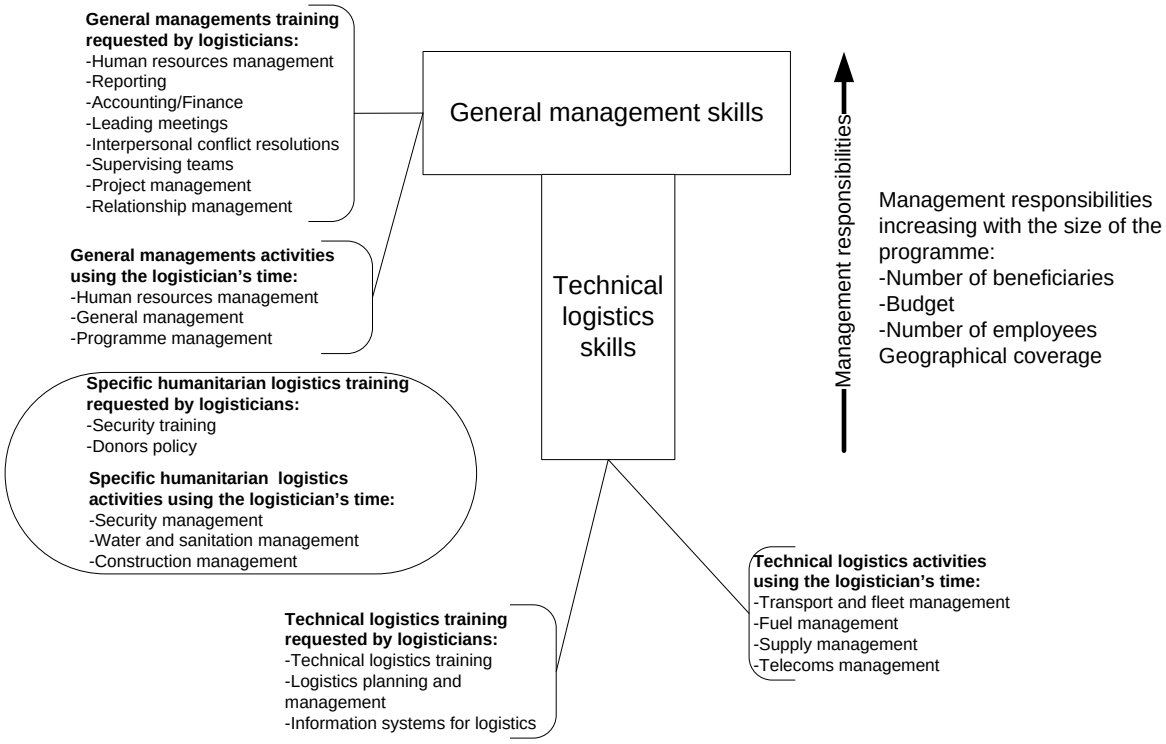

Figure 2: Training priorities vs. current activities of humanitarian logisticians

Figure 2 contrasts the findings from hypotheses 1 and 2. Interestingly, what logisticians spend their time on does not always correspond to the areas they would like to be trained in. As an example among the activities tested in the category of the humanitarian context, logisticians spend significant time on water and sanitation management and construction management, but this does not figure amongst the areas in which they would like to be trained. As results from hypothesis one explain, the difference is only explicable by considering career progressions. Overall, we could clearly show a move towards more requirements in broader, general management skills that associated with career progressions.

Conclusions and avenues for further research

This study has contributed to the understanding of humanitarian logistics jobs profiles through an analysis on what humanitarian logisticians spend their time on, and also through identifying their needs for professional development during the course of their career. The aim of our paper was to evaluate job profiles in humanitarian logistics, and assess current task priorities in light of further training and educational needs. As for job profiles, our results indicate that career

progressions indeed impact on how logisticians spend their time on various activities. For example, activities such as fuel management and construction management lose their importance for logisticians working at headquarters. However, interestingly, whether they manage programmes with large or small numbers of beneficiaries does not impact on how logisticians spend their time on the job, on the other hand, with a greater number of employees came a larger focus on security management (and obviously, human resource management). One could, thus, interpret security management as focusing on programme staff rather than beneficiaries.

Overall, there was a considerable overlap between time splits of humanitarian logistics in this study and the skills rankings based on Kovács *et al.*'s (2012) content analysis of job advertisements. As required in vacancy notifications, most of the time of humanitarian logisticians went to "supply management", followed at some distance by other categories. Obviously, respondents working in supply management had a much stronger focus on related activities, nevertheless, supply management was not deemed unimportant for any position in the organisation nor did it diminish in importance when moving up the career ladder. From a training and education perspective it therefore seems important to focus on the development of related skills.

More importantly from an education perspective are the results from hypothesis 1, i.e. the training and education needs of humanitarian logisticians. Interestingly, controlling a larger budget does not lead to differences in training needs although, overall, there is a progression when it comes to other variables of programme size such as an increase number of beneficiaries or an increased number of employees. Both impact on the need for training in security management in particular. Unsurprisingly, moving from the field towards headquarters comes with more training requirements in financial and accounting. The findings corroborate Mangan and Christopher's (2005) interpretation of the T-shaped skills model in that increased responsibilities skew training needs away from technical logistics and towards more general management skills. Generally, the evidence suggests that there is a hierarchy of skills that is important in humanitarian logisticians (as previously implied in Kovács *et al.*, 2012) and that the needs for these skills depend on the levels of responsibilities. This is interesting to practitioners since it allows them to identify what type of skills they should be looking for in order to progress

in their career path. These findings enhance our understanding of the training needs and activities of humanitarian logistician. Most importantly, there should be a differentiation in which training programmes are offered to humanitarian logistics practitioners in the field vs. to those working on country levels or in headquarters. Considering the differences in the level of focus in the hierarchy of skills and the move towards more need of the group of general management skills, it seems that a step up in the career of a humanitarian logistician would imply the need for refocusing, and also for education to support such a reorientation.

Several areas have been identified for further research. Even though our study has shed light on specific areas of responsibility and priorities for professional development, the career path of humanitarian logisticians has not yet been studied in detail and, in particular, longitudinal studies (such as Murphy and Poist, 2007 for business logistics) are missing in this area. Secondly, the question of how an individual's experience is recognized across organizations, especially in light of the amount of 'on the job training' training that exists within humanitarian organizations, is an important question not addressed by our study. Further research is also needed to investigate the matching between needs for professional development, and how these needs are (not) met by current training and education programmes.

Lastly, given the propensity for the logistics function to remain a support function to central operations, and indeed this was one of the key findings the Fritz Institute study identified (Thomas and Mizushima, 2005), further analysis is needed to understand the relationship between training and education and the maturity of the logistics and supply chain function within the organization.

References

Abrahamsson, M. (2008), "Logistics based business model – the case of Swedish food retail and manufacturing industries", *NOFOMA 2008 Conference Proceedings*, Helsinki, Finland.

CILT (Chartered Institute of Logistics and Transport, UK, 2008), "Humanitarian and emergency logistics personnel: Logisticians job description assessment", www.ciltuk.org.uk/download/helpanalysis.pdf.

Humanitarian Logistics Association, (2013), "WELCOME TO HLA!" at http://www.humanitarianlogistics.org/, accessed Mar 14, 2013.

Hughes, K. (2009), "The evolution of fully flexible supply chains", In Gattorna, J. (ed), *Dynamic Supply Chain Alignment.* Gower: Farnham, UK.

Kovács, G. and Spens, K.M. (2011a), "Humanitarian logistics and supply chain management: the start of a new journal", *Journal of Humanitarian Logistic and Supply Chain Management*, Vol.1 No.1, pp.5-14.
Kovács, G. and Spens, K.M. (2011b), "Trends and developments in humanitarian logistics – a gap analysis", *International Journal of Physical Logistics and Distribution Management*, Vol.40 No.1, pp.32-45.
Kovács, G. and Tatham, P.H. (2010), "What is special about a humanitarian logistician? A Survey of logistics skills and performance", *Supply Chain Forum: An International Journal*, Vol.11 No.3. pp.32-41.
Kovács, G., Tatham, P.H. and Larson, P.D. (2012), "What skills are needed to be a humanitarian logistician?" *Journal of Business Logistics*, Vol.33 No.3, pp.245-258.
Mangan, J., and Christopher, M. (2005), "Management development and the supply chain manager of the future", *International Journal of Logistics Management*, Vol.16 No.2, pp.178–191.
Mangan, J., Gregory, O. and Lalwani, C. (2001), "Education, training and the role of logistics managers in Ireland", *International Journal Logistics: Research and Applications*, Vol.4 No.3, pp.313–27.
Murphy, P.R., and Poist, R.F. (2007), "Skill requirements of senior-level logisticians: A longitudinal research assessment", *Supply Chain Management: An International Journal*, Vol.12 No.6, pp.423–431.
Oloruntoba, R. and Gray, R. (2006), "Humanitarian aid: an agile supply chain?" *Supply Chain Management – An International Journal*, Vol.11 No.2, pp.115-120.
Overstreet, R.E., Hall, D., Hanna, J.B. and Rainer Jr., R.K. (2011), "Research in humanitarian logistics", *Journal of Humanitarian Logistics and Supply Chain Management*, Vol.1 No.2, pp.114-131.
Swords, S (2007), "Behaviours which lead to effective performance in humanitarian response", People in Aid. At: http://www.peopleinaid.org/publications/Behaviours.aspx, accessed 18 Mar 2013.
Taylor, C. (2006), "Five reasons why global logistics is moving from the basement to the boardroom – and five steps of transformation", *White Paper BCW00009-USEN-01*, IBM Global Business Services, Somers, NY, USA.
Thomas, A. and Mizushima, M. (2005), "Logistics training: necessity or luxury?" *Forced Migration Review*, No.22, pp.60-61.
Tomasini, R.M. and van Wassenhove, L.N. (2009), "From preparedness to partnerships: case study research on humanitarian logistics", *International Transactions in Operations Research*, Vol.16 No.5, pp.549-559.
Van Wassenhove, L.N. (2006), "Humanitarian Aid Logistics: supply chain management in high gear", Journal of the Operational Research Society, Vol.57 No.5, pp.475-589.
Walker, P., and Russ, C. (2010), "Professionalising the humanitarian sector," ELRHA. http://www.elrha.org/uploads/Professionalising_the_humanitarian_sector.pdf, accessed 18 Mar 2013.

Appendix A: Excerpt from the HLA survey

Q1: What is your job title?

Q2: What type of organization are you working for?

- Red Cross
- UN agency
- International NGO
- Other, please specify

Q3: What type of programme is your organization managing? (Please, select all relevant categories)

- Emergency response
- Reconstruction and rehabilitation
- Disaster prevention and preparedness
- Other, please specify

Q4: At which level of your organization do you work?

- Field
- Country
- Region
- Headquarters
- Others, please specify

Q5: What is the estimated number of beneficiaries in the programme (s) that you work for?

- Less than 5 000 people
- Between 50 000 and 100 000 people
- Between 5 000 and 25 000 people
- More than 100 000 people
- Between 25 000 and 50 000 people Don't know

Q6: What is the yearly budget you directly control?

- None
- Less than € 100 K (~ US$ 127 K)
- Between € 100 K (~ US$ 127 K) and € 500 K (~ US$ 635 K)
- Between € 500 K (~ US$ 635 K) and € 2.500 K (~ US$ 3175 K)
- Between € 2.500 K (~US$ 3175 K) and € 10.000 K (~ US$ 12700 K)
- More than € 10.000 K (~ US$ 12700 K)
- Don't know

Q7: How many people work under your responsibility?

- 0
- Less than 10
- etween 10 and 50
- Between 50 and
- 100
- More than 100

Q8: How long have you been working for your organization (Years)?

Q9: What percentage of your working time do you spend on the following areas? (Total must sum to 100)

- Human Resources
- Management
- General Management
- Programme management
- Security Management
- Transport and Fleet Management0
- Fuel Management
- Supply Management
- Water and Sanitation Management0

- Construction Management0
- Telecoms Management

Q10: Which of the following areas are the most important to your professional development over the next 2 years? Please, select 3 topics maximum.

- Human Resources
- Management
- Interpersonal conflict resolution
- Security training Relationship Management
- Reporting Supervising teams
- Donor's policy
- Information Systems for Logistics
- Accounting / Finance Technical Logistics training
- Project Management
- Others please specify
- Leading meetings
- Logistics Planning and Management