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ASSESSING GLOBALIZATION COMPETENCES IN THE INFORMATION SYSTEMS DOMAIN – INSTRUMENTS AND METHODS

ABSTRACT

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The goal of this bachelor's thesis is to research suitable competence assessment instruments and methods for assessing globalization competence in the Information Systems domain. Within the framework of the study, globalization competences are the skills and abilities required from an individual in order for him or her to perform effectively in an international context in the Information Systems field.

The results of the analysis indicate that the most applicable competence assessment methods for assessing globalization competences in the Information Systems domain are written format assessments (especially essays), candidate self-reports, live interactions (especially group work) and computer simulations.

The primary method of the research was literature analysis which was conducted on the concept of globalization competences and competence assessment models. Thereafter a design-science research approach was taken in order to address the research problem and match the globalization competences with suitable competence assessment methods.

Finally, the validity of the outcome was confirmed through an appraisal of the practical applicability of the suggested competence assessment methods in relation to the learning objectives of two university courses of different complexity levels.

Keywords: globalization competence, internationalization, competence assessment, competency, evaluation, assessment models, Information Systems curriculum

TIIVISTELMÄ

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Tämän tutkielman tavoitteena oli löytää sopivia kompetenssien arviointimenetelmiä ja –välineitä kansainvälistymiseen tarvittavien kompetenssien määritystä varten tietojenkäsittelytieteiden alalla. Tutkielman puitteissa kansainvälistymiseen tarvittavilla kompetensseilla tarkoitetaan niitä kykyjä ja taitoja joita yksilö tarvitsee toimiakseen menestyksekkäästi kansainvälisessä ympäristössä tietojenkäsittelytieteiden alalla.

Ensin kansainvälistymiskompetenssien käsitteestä ja kompetenssien arviointimalleista toteutettiin kirjallisuuskatsaukset, jotka toimivat tutkimuksen perustana. Tutkimusongelman jatkokäsittelyä varten suoritettiin ns. suunnittelu-tiedetutkimus (alkup. *design-science research*) jossa kansainvälistymiseen tarvittavat kompetenssit ja niiden arviointiin soveltuvat kompetenssien arviointimenetelmät sovitettiin yhteen.

Tutkimus tuotti neljä suositusta tietojenkäsittelytieteiden alalle kansainvälistymiseen tarvittavien kompetenssien arviointimenetelmiksi: kirjalliset arvioinnit (erityisesti esseekysymykset), itsearvioinnit, vuorovaikutus reaaliaikaisissa tilanteissa (erityisesti ryhmätyötehtävät) ja tietokonesimulaatiot. Lopuksi tutkimustulosten vahvistamiseksi esiteltiin esimerkkitapaus arviointimenetelmien soveltamisesta käytäntöön. Tämä toteutettiin vertaamalla suositeltuja kompetenssien arviointimenetelmiä kahden eri vaatimustason yliopistokurssin osaamistavoitteisiin.

Asiasanat: globalisaatio, kansainvälistyminen, kompetenssi, kansainvälinen pätevyys, kansainvälistymisen arviointi, tietojenkäsittely, tietojenkäsittelytieteiden opetussuunnitelma

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1 INTRODUCTION

During the past two decades, the globalization phenomenon has been shaping the world. Not only has it affected attitudes towards foreign cultures but also made working globally more and more common. An increasing amount of internationally competent professionals are needed for jobs beyond borders (Grant & Young, 2010), hence the need for international academic education (Deans & Loch, 1998). New studies on global issues have been introduced in other domains, such as international business in business education, yet the curriculum of the Information Systems domain in higher education institutions has remained the same (Deans & Loch, 1998; Pawlowski & Holtkamp, 2012).

In the world of outsourcing, offshoring and increasing global work relations, intercultural competence emerges as one of the most desired capabilities for graduates who are likely to work in an international setting (Krajewski, 2011). Educating academic professionals who are competent to work in an international environment in the Information Systems field requires a prior determining of the globalization competences. Identifying the key globalization competences is pivotal to modernizing the Information Systems curriculum. The level of competence to work in an international environment is assessed by the identified globalization competences.

The purpose of the introduction chapter is to introduce the topic of the research and discuss its background, and present the research question, the aim of the research and the used research methods. In the second chapter, the term globalization competence is defined. Third chapter presents the concept of competence assessment with example methods from various fields of research. Suggestions for competence assessment methods for Information Systems domain are presented in the fourth chapter based on the preceding two chapters on globalization competences and competence assessment models. In the fifth chapter, the validity of the research outcome is confirmed through an evaluation of the practical applicability of the suggested competence assessment methods in relation to the learning objectives of two university courses. Finally, conclusions and future research prospects are presented in the sixth chapter.

1.1   Research question and the aim of the research

This work gives an overview of past research on globalization competences and related concepts, such as intercultural competence. In addition, the concept of competence assessment is presented. The main focus of this research is to introduce potential instruments and methods for assessing globalization competences in the domain of Information Systems for both professionals as well as students. Thus the goal of this work is to answer the following research question:

> *Which methods can be used for assessing globalization competences in the Information Systems domain?*

The challenge of this research is the lack of existing research on globalization competence assessment in the field and competence models for the Information Systems domain. Based on literature reviews on globalization competences and competence assessment, this work attempts to apply suitable assessment models from other fields to the field of Information Systems in order to assess globalization competences of students and professionals of Information Systems. General guidelines for assessing competence and example competence assessment models from the field of health care are utilized.

The aim of this work is to act as a general introduction to the topic, and also to present concrete instances of using the competences and methods in practice, for example through the learning objectives of university courses.

1.2   Research methods

The approach of the research is to first conduct a literature review on the globalization competences and competence assessment models. Based on the literature reviews, the applicability of available competence assessment methods for implementation in the Information Systems domain is explored. The suitability of the competence assessment methods is evaluated by the use of design-science research. Structure and research methods of the work are presented in Figure 1.

LITERATURE REVIEW:

What are globalization competences?

LITERATURE REVIEW:

What competence assessment methods are used in other fields?

DESIGN-SCIENCE RESEARCH:

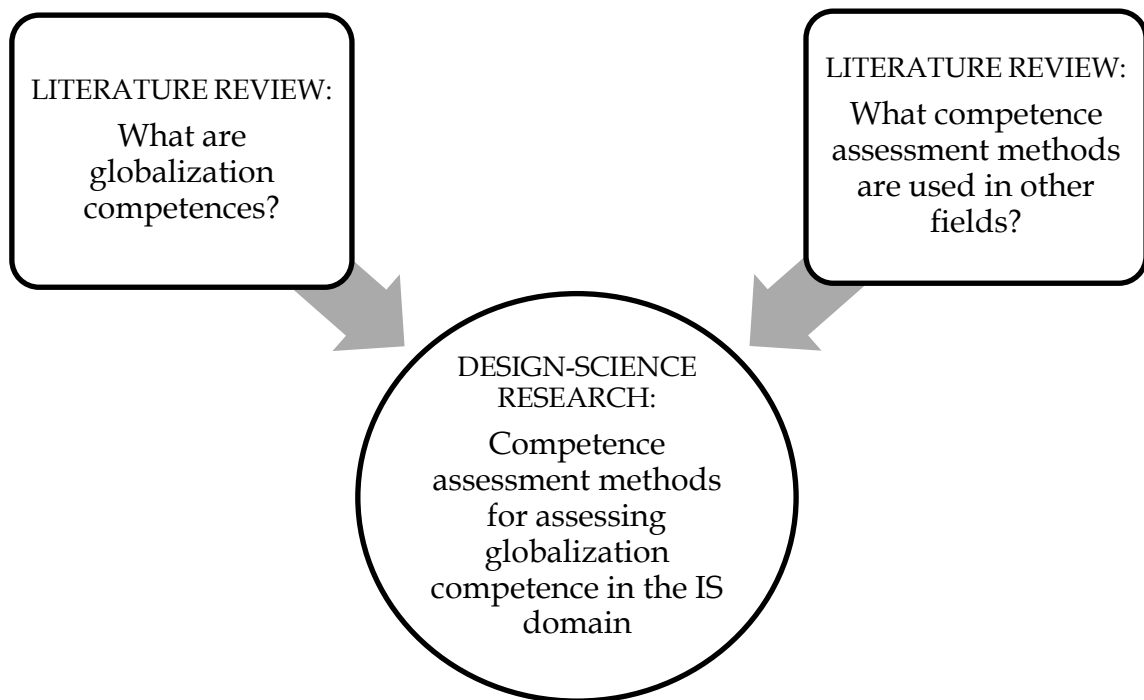Competence assessment methods for assessing globalization competence in the IS domain

FIGURE 1 Structure and research methods of the work

The design-science approach is a problem-solving paradigm aiming to dilate the boundaries of human and organizational capabilities by developing new artifacts. Knowledge and understanding of a problem domain and its solution is achieved through the building and application process of the designed artifact. (Hevner, Salvatore, Park & Ram, 2004.) Suitable instruments and methods for assessing globalization competence in the Information Systems domain are discovered through applying competence assessment models from other fields. Feasibility is evaluated by presenting a concrete situation of applying the competences and assessment methods in practice.

This research is largely based on the research on globalization competence in the Information Systems domain by Pawlowski & Holtkamp (2012), thus it will be used as the prime literature source. Their research provides the most recent empirical information on competences related to internationalization in the Information Systems field, but further elaboration is required. This research aims to extend the research topic regarding the assessment of competence and related methods. Further sources are utilized from the fields of information communication and technology, business and management, psychology, health care, sociolinguistics and intercultural studies.

2   GLOBALIZATION COMPETENCES

The purpose of this chapter is to present the basic concepts as the foundation for the later chapters of the research. Conceptual clarification gives basis for assessing globalization competences in the Information Systems domain.

In order to seize the concept of globalization competences, it is important to understand the sub-terms in question – globalization and competence. First, a distinction between the terms globalization and internationalization is presented, followed by an introduction to the differences between the terms competence and competency. Consequently, the concept of globalization competences is defined.

2.1   Globalization vs. internationalization

In order to accommodate the perspectives of this research, the focus of this paragraph is put primarily on defining globalization. However, it is prudent to remember the general confusion between the terms globalization and internationalization (Knight, 2004).

The term globalization can be defined in several ways. In the field of economics, globalization refers to the integration of national economies with the purpose of increasing the outcomes by dividing labor to different countries and reducing such barriers as tariffs and export fees (Bhagwati, 2007). Croucher (2004, 98) defines globalization in a more universal way as "a cluster of related changes occurring in, but not limited to, economic, technological, cultural and political realms that are increasing the interconnectedness of the world."

Globalization is often confused with similar terms, such as internationalization, localization, nationalization or regionalization. The distinctive aspect of globalization in comparison with the other terms is its disconnection from any particular spatial boundaries. In order to distinguish globalization from the other terms, Held, McGrew, Goldblatt & Perraton (2000) suggest that globalization must capture each of the four elements of the spatio-temporal dimensions

of globalization: extensity (stretching), intensity, velocity and impact. The first of the four elements, extensity, refers to the globally shared effects of social, political and economic activities spreading across regions. The second element, intensity, suggests that the connections between regions are not merely occasional but rather continuous, and intensify over time. Preceding two elements may accelerate global interactions and processes, thus introducing the third element, velocity. Together these three elements may break spatial boundaries causing relatively distant events to have major impact in local environments. Using these four elements Held et al. (2000) define globalization as

> a process (or set of processes) which embodies a transformation in the spatial organization of social relations and transactions – assessed in terms of their extensity, intensity, velocity and impact – generating transcontinental or interregional flows and networks of activity, interaction, and the exercise of power. (Held et al., 2000, p. 68)

Likewise, the definition for internationalization varies across environments and domains. In economics, internationalization has been viewed as a process of increasing involvement of enterprises in international operations (Welch & Luostarinen, 1988). The aim of increasing international operations could be applied to several environments, not just economics. However, most of the definitions available concentrate merely on a specific field of study, making it difficult to give one universal definition for the term. In this work it would be most appropriate to use a definition suitable for the field of education. Therefore, the following working definition is proposed:

> Internationalization at the national/sector/institutional levels is defined as the process of integrating an international, intercultural or global dimension into the purpose, functions or delivery of post-secondary education. (Knight, 2004, p. 11)

Both globalization and internationalization have several diverse definitions. It can be concluded that globalization is more focused on changing the flow of the world, whereas internationalization is considered merely as the process of integrating an international dimension into a certain function. To sum up, "internationalization is changing the world of higher education, and globalization is changing the world of internationalization (Knight, 2004, p. 5)."

In this work, the term internationalization – integrating an international dimension into a function – is used when discussing the revision of the Information Systems curriculum. Globalization competences are the competences needed to work in an international environment, thus the term globalization is used to refer to the alteration of environments.

2.2 Competence vs. competency

Like internationalization and globalization, the terms competence, competency and other closely related terms, such as skill and ability, are frequently con-

fused with each other. Furthermore, the term learning outcome has become more popular alongside competence and competency and is used for example in the research by Pawlowski & Holtkamp (2012). The lack of universally distinguishable definition for competence and competency has caused the terms being used varyingly and interchangeably across fields and countries (Grant & Young, 2010; Trotter & Ellison, 2001).

"Competence is the ability to do a particular task, while competency concerns the underlying characteristics which allow a person to perform well in a variety of situations (Trotter & Ellison, 2001, p. 36)." The use of the terms varies much across countries; competence is a concept used mostly in the UK, whereas the concept of competency is greatly influenced by American thinking. In its simplest, competences are the outputs required for the specified minimum standards, and competencies are the inputs a person brings to a job resulting in superior performance. (Trotter & Ellison, 2001.) In addition, it is important to understand the differences between the terms competence, skill, ability and knowledge. Competence is not merely possessing the knowledge, skill or ability, but instead the ability to perform the most appropriate action with the possessed knowledge, skill or ability (Grant & Young, 2010).

Another important issue to be discussed herein is the concept of a learning outcome. Pawlowski & Holtkamp (2012, 2) use the concept of learning outcomes as a basis in their research on globalization competences in the Information System field, and discuss that learning outcomes can be seen as competences when applied to a certain problem in a certain context. The European Qualification Framework by European Communities (2008, 11) defines learning outcomes as "[…] statements of what a learner knows, understands and is able to do on completion of a learning process, which are defined in terms of knowledge, skills and competence."

In conclusion, both competence and competency can be characterized as being related to knowledge, characteristics, skill and attitude or behavior required for the successful performance of a job, a task or a role (Grant & Young, 2010; Trotter & Ellison, 2001). In order to facilitate and maintain the continuance of the terminology with the prime literature source, the term competence is selected to present the perspective of this research. Following the definition of competence by Pawlowski & Holtkamp (2012), competence is defined as

> a collection of skills, abilities, and attitudes to solve a problem in a given context. (Pawlowski & Holtkamp, 2012, p. 2)

Furthermore, the concept of a learning outcome will be used as a basis for the globalization competences discussed in this work.

2.3 Globalization competences

Skills and expertise in internationalization play a significant role for students and professionals of Information Systems who are working in a global environment. Several attempts at creating definitions, models and instruments for the competence required for operating in an international setting have been made throughout the past 30 years (see for example Arasaratnam, 2006; Deardorff, 2006; Pawlowski & Holtkamp, 2012; Johnson, Lenartowicz & Apud, 2006; Spitzberg, 2011; Ting-Toomey, 1999), yet a clear and universally accepted definition has not been achieved. Arasaratnam (2006, 94) suggests that in order to be interculturally competent, one must have empathy, motivation, positive attitude toward other cultures, experience, and interaction involvement. At the same time, a definition for cross-cultural competence from the field of international business states that "Cross-cultural competence in international business is an individual's effectiveness in drawing upon a set of knowledge, skills, and personal attributes in order to work successfully with people from different national cultural backgrounds at home or abroad (Johnson et al., 2006, p. 530)."

The definitions vary greatly across domains; intercultural competence in sociolinguistics, cross-cultural competence in international business and herein globalization competence in the field of Information Systems. An initial set of globalization competences for revising the Information Systems curriculum was introduced by Pawlowski & Holtkamp (2012). Their research identified seven different categories of competences required for graduates of Information Systems to perform successfully in a global work environment. The research introduces the core international competences, which in conjunction with Information Systems specific competences can be defined as the globalization competences. (Pawlowski & Holtkamp, 2012.)

The seven categories of the curriculum, in other words the internationalized competences, are (Pawlowski & Holtkamp, 2012, p. 4):

- Generic competences
- IS competences
- ICT competences
- Project Management and Leadership competences
- Collaboration and Knowledge Management competences
- Communication competences
- Intercultural competences

Generic competences include unchanged competences from different categories but focus mainly on domain-specific competences. IS *(Information Systems)* competences focus on domain-specific Information Systems competences adapted for an international context. ICT *(Information & Communication Technology)* competences range from basic computer skills and skills to operate different programs to more complex knowledge about IT architectures, security and

management. Project Management and Leadership competences cover areas of basic business competences, team management and work distribution skills. Collaboration and Knowledge Management competences include the ability to share and transfer knowledge in a group, in addition to work attitudes in an international team. Communication competences focus strictly on the exchange of messages and information in verbal and written form, including choice of communication style and management of communication. Intercultural competences consist of abilities such as cultural awareness and the understanding of cultural differences. Furthermore, they can influence the competences of the other categories, for example communication behavior can change in order to adapt successfully to an international context. (Pawlowski & Holtkamp, 2012.)

The relation between both Generic and IS competence categories and Intercultural competences is unclear and has not been studied further. Therefore, only the last five categories are studied in greater detail. The four most important globalization competences out of each category identified by the research are presented in Table 1. (Pawlowski & Holtkamp, 2012, p. 7-8). The competences are presented in the order of importance, the most important being number one.

TABLE 1 The most important globalization competences per category

Category	Competence description
ICT	1. Ability to align ICT with the business requirements 2. Understanding of importance and limitations of different information sources 3. Ability to find quality information with the help of ICT 4. Ability to identify problems with ICT
Project Management and Leadership	1. Ability to manage own work 2. Ability to use other people's expertise and knowledge 3. Ability to take responsibility 4. Ability to make decisions
Collaboration and Knowledge Management	1. Ability to build national and international relationships and networks on a professional level 2. Ability to share information and knowledge with the team 3. Ability to collaborative problem resolution 4. Ability to understand other people's perspectives, needs and values
Communication	1. Ability to communicate sensitively taking into account other personalities and cultures 2. Ability to listen to others and consider their thoughts 3. Ability to communicate clearly and articulately 4. Ability to focus on key points during communication
Culture	1. Foreign language skills (e.g. English) 2. Understanding the influences and implications culture has in work life 3. Ability to adjust to different cultures 4. Ability to evaluate perspectives, practices and products from multiple cultural perspectives

In order to map the requirements for internationalization of the Information Systems curriculum and justify the selected competences, a variety of stakeholder groups – higher education teachers, researchers, students and professionals from the Information Systems field – were interviewed for the research. The globalization competence categories presented in Table 1 include competences from the fields of ICT, project management and leadership, collaboration and knowledge management, as well as competences required in intercultural communication contexts. The aforementioned categories demonstrate intercultural competence, including competences such as the ability to build national and international relationships, communicate considering other cultures, adjust to different cultures, evaluate issues from multiple cultural perspectives, speak different languages, and understand the impact of culture in work life.

From the perspective of this work, it can be concluded that globalization competence is a collection of skills, abilities, and attitudes of different functional areas with the aim of solving problems and performing successfully in an international context in the Information Systems domain.

3   COMPETENCE ASSESSMENT

Assessment of skills, knowledge, performance and personal attributes of an individual has become increasingly important for not only job selection, allocation and career development in professional life, (Chilton & Hardgrave, 2004; Spencer Jr., 1997) but also for managing organizational objectives (Campion, Fink, Ruggeberg, Carr, Phillips & Odman, 2011) in order to keep the competitive edge. Successful performance is expected in all walks of life in order to satisfy the requirements and expectations of the roles, tasks and positions. The selection of the right people for the right positions results in increased performance, value and revenue of the company. In consequence, increased pressure is put for educational systems to produce graduates ready for work. (Grant & Young, 2010.) Educational programs are expected to provide competence, individuals are required to be certified as competent, and decision-makers exalt competence while consumers demand it (Hoge, Leighton & O'Connell, 2004). Matching available positions with suitable people requires means for assessing and measuring the abilities and knowledge of individuals (Grant & Young, 2010).

Developing competence is a life-long process. Professional competence is context-dependent and both the execution of the assessment and the salience of each competence vary according to domain. A multifaceted approach is required for assessing the development and maintenance of the multidimensional professional competence. (Leigh, Smith, Bebeau, Lichtenberg, Nelson, Portnoy, Rubin & Kaslow, 2007.)

When discussing the measuring of skills and abilities of an individual, the term competence (or competency) assessment is typically used in the field of psychology, whereas concepts such as performance ratings (Chilton & Hardgrave, 2004), job analyses (Campion et al., 2011), and the assessment of user competence (Marcolin, Compeau, Munro & Huff, 2000) are more commonly discussed in the Information Technology (IT) field. All of these concepts are related to each other and assessing competence; however, performance ratings and user competence assessments are often more specialized and focused on a specific measured issue, such as performance in IT work. The globalization

competences to be assessed in this work include performance-related competences, but also an intercultural communication competence aspect, and thus performance ratings and user competence assessments are not suitable for competence assessment tools on their own in this work. According to Grant, Elbow, Ewens, Gamson, Kohli, Neumann, Olesen & Riesman (1979, 5-6 as quoted by Wolf, 2001, 2) competence-based assessment in educational setting can be defined as

> a form of assessment that is derived from a specification of a set of outcomes; that so clearly states both the outcomes – general and specific – that assessors, students and interested third parties can all make reasonably objective judgments with respect to student achievement or non-achievement of these outcomes; and that certifies student progress on the basis of demonstrated achievement of these outcomes. Assessments are not tied to time served in formal educational settings. (Grant et al., 1979, p. 5-6; Wolf, 2001, p. 2)

The term competence assessment is chosen to be used in this work, as it provides a general view for assessing the skills, knowledge, capabilities, characteristics and performance of an individual. Competence assessment offers knowledge in order to be further able to train and develop skills and abilities for performing successfully in a desired situation in a certain environment.

A single assessment is not sufficient to evaluate all competences, but assessments can be combined in complementary ways (Leigh et al., 2007). The variance in the importance of competences causes diverse assessment models and methods to be used across domains. In response to the diverse requirements of all professional fields, Kaslow, Rubin, Bebeau, Leigh, Lichtenberg, Nelson, Portnoy and Smith (2007, 442-447) developed a general set of guiding principles for assessing competence. The principles are mainly suited for education, training and credentialing of professional psychologists, but they are built upon a review of competency assessment models which include practices from psychology and other professions alike. The guiding principles include suggestions for an organization for accommodating the culture of competence assessment and maintaining its continuity. Competence assessment must be a career-long activity, and it is essential that competences are conceptualized as generic, wholistic and developmental abilities. (Kaslow et al., 2007.) Altogether, the guidelines describe competence assessment and its implementation in detail and are taken into consideration in this research.

Competence assessment tools in the Information Systems domain are typically aimed at evaluating the performance or competences of an employee in order to provide feedback to help improve performance, motivate the self-development of the employee, and to justify actions of the management such as promotions, pay increases or decreases, demotions, or dismissal (Chilton & Hardgrave, 2004). Due to the foregoing, they are often not called competence assessments, but rather performance evaluations (Chilton & Hardgrave, 2004) or job analyses (Campion et al., 2011). A recent research by Campion, Fink, Ruggeberg, Carr, Phillips & Odman (2011) incorporated the best practices and

lessons learned from professionals and academicians in competence modeling and explained the differences of competence modeling and job analysis. Their research showed that job analyses and competence assessments are linked to organizational objectives and can be utilized in the development of the organization and its members, and in achieving the goals of the organization. (Campion et al., 2011.)

Due to the lack of empirical research on competence assessment models in the Information Systems field (Campion et al., 2011) and also because of their biased perspective (assessment tools evaluating merely one aspect of globalization competence, for example performance), more examples of models herein are presented from the field of health care. Competence assessment models in the field of health care are grouped into four categories according to their purport and/or what they measure: 1) knowledge, 2) professional decision making, 3) practice performance including professional attributes, and 4) integrated assessments of practice-based skills and tasks (Leigh et al., 2007).

Assessments measuring knowledge include essay and short-answer questions, as well as multiple-choice questions, which are generally considered as the most efficient and cost-effective way of measuring knowledge. These measures of knowledge are considered as the foundation component of any competence assessment system. (Leigh et al., 2007.)

Measures of decision making are typically orally examined case studies utilizing images, video and audio material, such as written vignettes, candidate reports, and live patient or client situations which can be deployed at different stages of professional education, or as requirements in assessments. The case-based oral examinations require appropriate training of examiners, efforts to maintain unity in both the case studies and the test environments throughout candidates, and a reliable system for scoring qualitative responses. (Leigh et al., 2007.)

Performance and personal attributes assessments, such as global ratings, 360° assessments and portfolios, are used to measure and reflect the development of professional competencies and the need for change of specific behaviors, personal, or professional attributes. They are generally considered accurate, but can turn out to be time consuming, expensive and require a considerable number of assessors and trained examiners. (Leigh et al., 2007.)

Finally, integrated assessments of practice-based skills and tasks consist of strategies such as role-playing situations utilizing audio or video material, live interactions with patients or clients, and computer simulations. The objective is to illustrate real-life situations to the fullest extent possible in order to evaluate the performance of the candidate against predefined competencies. This category of assessments is high on fidelity but generally considered expensive unless a large number of candidates are examined at the same time. The simulation technology creates additional barriers, as for example the technologies alter constantly – the content needs to be refreshed and the simulation technology maintained and monitored. (Leigh et al., 2007.)

4   COMPETENCE ASSESSMENT INSTRUMENTS AND METHODS

Based on the literature reviews of the preceding two chapters, suggestions for applicable competence assessment instruments and methods in order to assess globalization competence in the Information Systems domain are presented through a design-science approach. The design-science research method creates and evaluates Information Technology artifacts intended to solve identified organizational problems (Hevner et al., 2004). In this research, the problem to solve is to find suitable competence assessment methods for assessing specifically globalization competences in the Information Systems field.

This chapter attempts to match the globalization competences with appropriate competence assessment methods. The evaluation of the assessment methods is conducted based on the design-science guidelines by Hevner et al. (2004) in the next chapter.

The classification of the competence assessment methods from the field of health care is considered explicit and appropriate, and is therefore utilized in categorizing the assessment method suggestions in this chapter. Next, the globalization competences of the Information Systems domain introduced in chapter 2.3 are matched with applicable competence assessment methods from the four measurement categories introduced from the field of health care (Leigh et al., 2007):

- Assessments measuring knowledge
  - Essays, short-answer questions and multiple-choice questions
- Assessments measuring decision making
  - Orally examined case studies; written vignettes, candidate reports and live client situations
- Assessments measuring performance and personal attributes
  - Global ratings, 360° assessments and portfolios
- Integrated assessments of practice-based skills and tasks
  - Role-playing situations, live interactions with clients or peers, and computer simulations

Suggestions for assessing globalization competence in the field of Information Systems are presented in Table 2. First, the previously introduced globalization competences are presented by category in the first two columns of the table. Thereafter, three most suitable assessment method suggestions are drawn from the four aforementioned assessment method categories and presented in the third column. The reasoning for these suggestions is made in the subsequent sub-chapters.

TABLE 2 Competence assessment method suggestions for the IS domain

Competence category	Competence description	Assessment method suggestions
ICT	Ability to align ICT with the business requirements	• Written vignettes • Essays • Computer simulations
	Understanding of importance and limitations of different information sources	• Essays • Written vignettes • Candidate reports
	Ability to find quality information with the help of ICT	• Essays • Candidate reports • Computer simulations
	Ability to identify problems with ICT	• Essays • Multiple-choice questions • Computer simulations
Project Management and Leadership	Ability to manage own work	• Candidate reports • Live interactions o group work • Computer simulations
	Ability to use other people's expertise and knowledge	• Live interactions o group work • Candidate reports • Computer simulations
	Ability to take responsibility	• Live interactions o group work • Role-playing situations • Computer simulations
	Ability to make decisions	• Live interactions o group work • Multiple-choice questions • Computer simulations
Collaboration and Knowledge Management	Ability to build national and international relationships and networks on a professional level	• Live interactions o with clients • Live client situations • Computer simulations
	Ability to share information and knowledge with the team	• 360° assessments • Role-playing situations • Live interactions o group work

Table 2 (continued)	Ability to collaborative problem resolution	• Live interactions ○ group work • Role-playing situations • Computer simulations
	Ability to understand other people's perspectives, needs and values	• Live interactions ○ group work • Written vignettes • Role-playing situations
Communication	Ability to communicate sensitively taking into account other personalities and cultures	• Essays • Live interactions ○ group work • 360° assessments
	Ability to listen to others and consider their thoughts	• Role-playing situations • Live interactions ○ group work • 360° assessments

	Ability to communicate clearly and articulately	• Essays
		• Live interactions
		     ○ group work
		• Short-answer questions
		     ○ interview

	Ability to focus on key points during communication	• Essays • Live interactions ○ group work • Live client situations

Culture	Foreign language skills (e.g. English)	• Multiple-choice questions
		     ○ language test
		• Essays
		     ○ testing grammar
		• Short-answer questions
		     ○ interview

	Understanding the influences and implications culture has in work life	• Essays • 360° assessments • Candidate reports
	Ability to adjust to different cultures	• 360° assessments • Live interactions ○ group work
	Ability to evaluate perspectives, practices and products from multiple cultural perspectives	• Candidate reports • Live client situations • Live interactions ○ group work

4.1 Assessments measuring knowledge

Methods for assessing competence in a problem solving scenario which requires a written response are essays and short-answer questions that explain how the problem or scenario would be addressed (Leigh et al., 2007). Further-

more, in the assessment of user competence in the IT field, tests requiring a written response are occasionally administered using computer-based testing programs in addition to actual pen and paper (Marcolin et al., 2000).

Essays can be utilized in assessing competence in various globalization competence categories, such as ICT, communication and intercultural competence. For example, essays can be exploited when testing communication competence and the capability to articulate and communicate explicitly in written format, or testing grammatical competence. In addition, essays are useful for assessing ICT competence; when there is a need for identifying problems or finding information, essays are a good way of testing if the candidate is able to solve problems and apply his or her knowledge in different situations.

Short-answer questions apply more or less to the same situations as essays, but could also be executed as interviews, for example in testing of spoken language skill. A trained examiner would have a conversation-like interview with the candidate, evaluating his or her spoken language and conversation skills, albeit a proper assessment of language skill requires more than merely written tests.

Undoubtedly the most popular and inexpensive way of testing knowledge is the multiple-choice format, which can yield valid assessments of higher order reasoning skills in the hands of a skilled candidate (Leigh et al., 2007). Computer-simulated multiple-choice tests could be employed as a language skill testing instrument. Overall, multiple-choice tests are easy to implement and test all kinds of knowledge, decision making and problem solving abilities in a written format.

To sum up, assessments measuring knowledge typically require the response to explain what can be done in the problem situation and which procedures could be used, whereas assessments measuring decision making or performance focus on the actual accomplishment of the task (Marcolin et al., 2000).

4.2   Assessments measuring decision making

Orally-examined case studies are usually implemented as written vignettes utilizing images, video or audio material, the candidate's own reports or live client situations. The purpose of using case studies is to give an opportunity for the candidate to use his or her decision making skills in order to reason their actions regarding the case to be solved. (Leigh et al., 2007.) Referred to as hands-on tests in the IT field, they are described as specific problem-based evaluations completed by the candidate when interacting with the tools provided (Marcolin et al., 2000). In the domain of Information Systems, case studies can be utilized in all of the globalization competence categories.

Written vignettes are suitable for situations where the identification of a problem, asset, or differences in other people's perspectives is required. Vignettes present a problem case which is to be solved by the information given;

they assess the competence of decision making in written form, causing the accuracy of the results to be limited.

Self-reporting measures are provided by the candidates themselves assessing their own abilities (Marcolin et al., 2000). In addition to general decision making situations, self-reports (candidate reports) can be utilized for assessing the competence in understanding different issues, the ability to utilize relevant tools, manage own work, evaluate issues from different cultural perspectives and understanding the impact of culture. The purpose of the reports is to act as a self-reflection tool and thus give an overview of the candidate's development and performance in a certain area.

Creating live client situation can help in assessing the ability to make decisions, to focus on key points during communication, and to evaluate issues from several culturally different perspectives. In a situation where interacting with a client is required, the capability of quick reacting and decision making comes up as important. The abilities to take all parties into account in communication, react quickly in situations where decision making is required, and communicate precisely are among the most important qualities of a good leader.

4.3 Assessments measuring performance and personal attributes

The objective of this assessment category is to measure and reflect the development of professional competences in order to further assess the need for change in certain personal or professional attributes or behaviors. Assessments such as global ratings, 360° assessments and portfolios are typically conducted at regular intervals with systematic feedback and monitoring of performance. (Leigh et al., 2007.) Mainly 360° assessments are suggested assessment methods for the Information Systems domain, specifically for categories of collaboration and knowledge management, and intercultural competence. Furthermore, an instrument measuring performance of personnel of the Information Technology field through a scale of behaviors is presented at the end of this chapter.

360° assessment format accumulates feedback retrospectively, concurrently and individually from multiple sources, such as supervisors, peers, colleagues, subordinates and oneself, in order to assess individual's competence (Leigh et al., 2007). In user competence assessment, assessments returning feedback responses of the candidates are referred to as observer assessments. These types of assessments involve evaluations of skill by independent observers who base their judgments on methods such as interviews and behavioral observations. (Marcolin et al., 2000.) Feedback methods allow the candidate to appreciate how they are viewed by other people, thus giving a great opportunity for self-reflection and development (Leigh et al., 2007). Performance and personal attributes are required to be measured in multiple categories in the Information Systems field.

Chilton & Hardgrave (2004) have implemented a Behavioral Rating Scale for the IT field rating the behavior (i.e. skills) of an individual. 17 behaviors

considered important for IT professionals – technical skills, managerial skills and people skills – are rated on a 1-5 Likert-scale. Typically only supervisors complete the instrument, thus mono-source bias is a concern. In order to attenuate the concern, the instrument could be used within a 360° evaluation process where multiple parties participate. (Chilton & Hardgrave, 2004.) The Behavioral Rating Scale is intended to act as a single instrument for measuring the overall performance of IT personnel, but in the case of assessing globalization competences it lacks certain dimensions, for example the intercultural aspect. In addition, the instrument measures behaviors (e.g. Leadership) instead of competence (e.g. Ability to make decisions), and consequently is not quite a suitable method for assessing globalization competences on its own. Nevertheless, some items of the scale (e.g. Listening) directly relate with the globalization competence being assessed (e.g. Ability to listen to others and consider their thoughts), and could be utilized for example in 360° assessments as they are.

Feedback from peer group, co-workers and team members is valuable when adaptation to the requirements of the surroundings and invocation of other people's expertise and knowledge is required. Other people's feedback helps in assessing candidate's knowledge sharing capabilities and communication skills. In order to entirely understand the influences culture has in work life and on the ability to adjust to different cultures, feedback from other people becomes worthwhile for the candidate's self-development. Feedback is valuable information for the assessor party in assessing the candidate's performance and personal attributes which otherwise cannot be discovered. Feedback can be gathered for example through the 360° assessment method.

4.4   Integrated assessments of practice-based skills and tasks

Integrated assessments of practice-based skills and tasks consist of assessment methods such as audio or video supported role-playing situations, live interactions and computer simulations (Leigh et al., 2007). Integrated "hands-on" assessments are completed by the candidate in a situation representing real-life circumstances as closely as possible in order to evaluate the accomplishment of the task and the practice-based skills of the candidate (Leigh et al., 2007; Marcolin et al., 2000).

The role-playing method is best used in situations where assessing the competence requires interaction with other people – project management and leadership, collaboration and knowledge management, and communication competences all include above-mentioned aspects. Capabilities, such as taking responsibility and sharing information with the team, are well assessed by the role-playing method. Furthermore, different kinds of communication competences can be assessed by the role-playing method. A role-play could be established around a certain topic or situation where related competences are to be assessed. All participants would be assigned a role for the duration of the play and given an assignment of their part which they should aim to achieve. Several

candidates could be evaluated at the same time by the examiners, making role-play an affordable assessment method. Ready-made stories and team games can already be found for example from the team-building and training materials of the student organization AIESEC.

Perhaps more commonly used competence assessment method in educational setting, live interactions with clients or peers can also be utilized in assessing competences in various categories in the Information Systems domain. Project management and leadership, collaboration and knowledge management and communication competences are best assessed by the live interactions method in the form of a group work. Group work can be utilized for example when assessing the candidate's ability to manage work, take responsibility, make decisions, share knowledge inside a team and solve problems collaboratively. Furthermore, intercultural competence is also well assessed by the group work method, when students learn to interact in a multicultural group. Several candidates can be evaluated at the same time in a group work situation, where examiners evaluate the abilities related to the group work assignment at issue. Group work method is extremely useful in the educational setting, where students learn by doing – applying their theoretical knowledge in practice.

Computer simulations in the field of health care are typically utilized in situations where no other assessment method can evaluate the required abilities, for example decision making in life-threatening situations (Leigh et al., 2007). In the field of business, however, Begum & Newman (2009) introduced a method for assessing and developing students' business and transferable skills through a computer simulation. Transferable skills, as they define the term, consist of team working, interpersonal, leadership, self-reliance, and communication skills. Business skills are related to solving business and management problems. The used computer simulation was a web-based business game where students start a new company with limited financial resources. Students are required to deal with marketing, product development, finance, business partner negotiations and human resource management during the whole process. In addition, a business plan in the beginning, and a final report at the end of the game were produced. A skills evaluation was completed by the students both in the beginning and at the end of the simulation. According to the research results, the opportunity to use business skills in practice was appreciated, although transferable skills were not perceived as significantly improved through the simulation. An explanation for the results, and a reason why the topic is suggested to be further investigated, is the trial group consisting merely of final year students. (Begum & Newman, 2009.) In conclusion, the above-mentioned business simulation game could be an implementable competence assessment method for globalization competences as well. Furthermore, in situations where interaction with other people is not possible computer simulations can compensate. Several abilities can be assessed by online computer simulations, provided live interaction with other people is not possible.

5 EVALUATION

The purpose of this chapter is to evaluate the validity and applicability of the suggested competence assessment methods in the Information Systems domain. First, the methodology of the evaluation is presented. Thereafter, the results of the research are concluded and their practical applicability is evaluated based on two university courses of different complexity levels.

5.1 Methodology

The evaluation is made based on the design-science guidelines by Hevner et al. (2004). A list of the guidelines and their descriptions are presented in Table 3.

TABLE 3 Design-science research guidelines (Hevner et al., 2004, p. 83)

Guideline	Description
1. Design as an Artifact	Design-science research must produce a viable artifact in the form of a construct, a model, a method, or an instantiation.
2. Problem Relevance	The objective of design-science research is to develop technology-based solutions to important and relevant business problems.
3. Design Evaluation	The utility, quality, and efficacy of a design artifact must be rigorously demonstrated via well-executed evaluation methods.
4. Research Contributions	Effective design-science research must provide clear and verifiable contributions in the areas of the design artifact, design foundations, and/or design methodologies.
5. Research Rigor	Design-science research relies upon the application of rigorous methods in both the construction and evaluation of the design artifact.
6. Design as a Search Process	The search for an effective artifact requires utilizing available means to reach desired ends while satisfying laws in the problem environment.
7. Communication of Research	Design-science research must be presented effectively both to technology-oriented as well as management-oriented audiences.

Next, the application of the guidelines to this research is discussed in the order they are presented in Table 3.

> Guideline 1: Design as an Artifact. Design-science research must produce a viable artifact in the form of a construct, a model, a method, or an instantiation (Hevner et al., 2004, p. 83).

The design artifact of this research is the collection of suggestions for competence assessment methods and instruments in order to assess globalization competence in the Information Systems field. The suggestions are presented in Table 2 and discussed in its subsequent chapters.

> Guideline 2: Problem Relevance. The objective of design-science research is to develop technology-based solutions to important and relevant business problems (Hevner et al., 2004, p. 83).

It has been indicated by several researchers that there is a need for internationalization of the Information Systems curriculum (Deans & Loch, 1998; Pawlowski & Holtkamp, 2012). Prior to the curriculum changes, the required globalization competences of students and professionals need to be assessed (Pawlowski & Holtkamp, 2012). Lacking its own culture of competence assessment, an attempt at utilizing assessment models from other fields of research for implementation in the Information Systems domain is executed in this research.

> Guideline 3: Design Evaluation. The utility, quality, and efficacy of a design artifact must be rigorously demonstrated via well-executed evaluation methods (Hevner et al., 2004, p. 83).

The length of this research is limited, thus the evaluation of the design artifact will be left for future studies. Nevertheless, illustrations for applying the assessment methods in practice are be presented later in this chapter.

> Guideline 4: Research Contributions. Effective design-science research must provide clear and verifiable contributions in the areas of the design artifact, design foundations, and/or design methodologies (Hevner et al., 2004, p. 83).

The final contributions of this research are the suggestions of competence assessment methods applicable for the Information Systems domain. The suggested competence assessment methods advance the development of a competence assessment culture in the field of Information Systems.

> Guideline 5: Research Rigor. Design-science research relies upon the application of rigorous methods in both the construction and evaluation of the design artifact (Hevner et al., 2004, p. 83).

The contributions of this research are based on previous verifiable contributions, such as rigorous studies on globalization and intercultural competence (see for example Arasaratnam, 2006; Deans & Loch, 1998; Grant & Young, 2010; Pawlowski & Holtkamp, 2012; Johnson et al., 2006; Krajewski, 2011) and competence assessment methods (see for example Leigh et al., 2007).

> Guideline 6: Design as a Search. The search for an effective artifact requires utilizing available means to reach desired ends while satisfying laws in the problem environment (Hevner et al., 2004, p. 83).

The design-science research is based on literature reviews on globalization competences in the Information Systems domain, and competence assessment methods used in other fields. After defining and discussing the required competences and possible assessment tools, the focus is put to matching the suitable assessment methods with the globalization competences. The applicability for the domain is justified by presenting examples from other studies on evaluation methods utilized in the field of Information Systems.

> Guideline 7: Communication of Research. Design-science research must be presented effectively both to technology-oriented as well as management-oriented audiences (Hevner et al., 2004, p. 83).

This research is mainly aimed at technology-oriented academicians of Information Systems who are researching issues related to globalization and internationalization of the education curriculum. Furthermore, this work is a compact knowledge base for managerial audiences who are looking to globalize their business, and therefore could be utilized for training and evaluation planning purposes in the Information Systems field.

5.2   Results of the research

The results of the research are concluded in this chapter. Written format assessments (especially essays), candidate self-reports, live interactions (especially group work) and computer simulations are considered the most suitable competence assessment methods for the Information Systems educational setting.

Written format assessments – essays, short-answer questions and multiple-choice questions – have been generally considered as the foundation of any competence assessment system (Leigh et al., 2007) and continue to be such in the Information Systems domain as well. Assessments requiring a written response are recommended to be utilized as the final exam of a course in higher education as they are straightforward and inexpensive to execute.

Self-reports improve the development of any competence. When students evaluate their own competence, they start to think about their actual achievements and skills in more detail, instead of an external party telling what they

have developed. For example, understanding the impact of culture to working life or communication has to be realized before it can be called competence.

Live interaction, especially group work, was considered the most popular method for assessing globalization competences. Group work assignments are excellent for situations where communication, interaction, management of self or others, decision making, or intercultural competence is being assessed. It is an easy, inexpensive and effective method to be applied in educational setting, for example a smaller assignment as part of the course or the main assignment as a project during a higher education course. Group work assignments are a simple way of activating students to work towards a common goal.

Finally, the presented example from Begum & Newman (2009) of a business simulation game on computer is considered an interesting new teaching method for courses where business and team working skills require to be evaluated. Furthermore, the business simulation game could be utilized for competence assessment in order to assess several globalization competences. The simulation method has not been researched widely and therefore requires more investigation, for example on costs and availability issues of such a program.

5.3 Practical applicability of the results

In order to validate the outcomes of the research, an appraisal of the practical applicability of the suggested competence assessment methods is presented. This is done by evaluating the suggested competence assessment methods in relation to the learning objectives of two university courses of different complexity levels that have an international aspect. The courses presented are *TJTS568 Global Information Systems*, an advanced level course in Information Systems Science, and *XYHX003 Fundamentals in Intercultural and Multilingual Communication*, a basic level course in internationalization studies from the Language Centre. Next, the learning objectives of both courses are introduced and reflected against globalization competences and the suggested competence assessment methods. The development of globalization competence through the learning objectives of the courses is discussed.

After completing the course *TJTS568 Global Information Systems* (appendix 1), students will be able to…

- analyze and evaluate management and development problems in globally distributed organizations
- decide whether an information system should be built in an international environment
- identify differences in culture in general, in management and communication
- design and develop systems to be used in a international context
- evaluate systems' adaptation and adoption

All of the learning objectives of the *Global Information Systems* course support the development of globalization competence. For example, the competences of being able to identify problems with ICT and evaluate perspectives, practices and products from multiple cultural perspectives are developed by practicing the analysis and evaluation of management and development problems in globally distributed organizations. Essays and multiple-choice questions are an easy and inexpensive method for testing knowledge learned during university courses, but especially group works are extremely well-suited for problem solving and decision making types of learning situations, such as this. The course includes a group assignment to produce a project proposal, a project report and a prototype of an information system in a multicultural group of students. Learning to identify differences in cultures and communication and seeing issues from different cultural perspectives is achieved through the group work. Furthermore, the group work provides a hands-on learning experience in planning, designing and developing actual information systems for an international context. The abilities to make decisions and align ICT with the business requirements are developed through the group work and final assignment when considering whether the information system should be built in an international environment and when designing and developing the prototype of the system. Understanding the influences and implications culture has in work life is learned through communication in a multicultural group, designing the system for an international environment and evaluating the adaptation and adoption of the system in different cultural contexts. Altogether, the course is well-designed for developing the ability to evaluate perspectives, practices and products from multiple cultural perspectives and enhancing globalization competence.

After completing the course *XYHX003 Fundamentals in Intercultural and Multilingual Communication* (appendix 2), students will be able to…

- understand and be able discuss fundamental principles and topics in intercultural communication from an interdisciplinary perspective
- be aware of different phenomena related to human behavior that affect intercultural communication (stereotypes, ethnocentrism, social identity, etc.)
- know that there are differences in the verbal/non-verbal ways in which e.g. feelings, values, norms and expectations related to others are expressed in different languages
- appreciate cultural and linguistic diversity
- analyze and negotiate communication between people from different cultural backgrounds in both national and international settings

The *Fundamentals in Intercultural and Multilingual Communication* course is focused on theoretical knowledge on intercultural communication competence while providing the tools for students for becoming competent in intercultural communication. The course consists of reading articles and writing a learning diary, in addition to a group work assignment in a multicultural group of stu-

dents. All of the globalization competences in the culture and communication categories are being developed through participation in the group work. Communicating and interacting in a multilingual group with different nationalities is extremely important in order to become competent in intercultural communication. For example language skills; ability to adjust to different cultures; ability to communicate clearly; tactful communication style which takes into account other personalities and cultures; listening skills and consideration of other people's opinions clearly developed during the interaction in the group work. The group work, as well as writing the learning diary include lots of reflection on communication styles and intercultural experiences, and thus give students a chance to apply the learned intercultural communication theories in practice. Writing the learning diary helps in realizing different human behavior related phenomena and the difference in both verbal and non-verbal expressions of feelings, values, norms and expectations in different cultures and languages. Furthermore, the group work develops collaboration and knowledge management competence through collaborative problem solving, information and knowledge sharing with the team, and understanding of other people's perspectives, needs and values. The ability to analyze and negotiate communication between people from different cultural backgrounds is one of the most important learning objectives of the course and also related to globalization competence. The course is well-suited for aiding the development of intercultural, communication, collaboration and knowledge management competence.

Both courses support the development of globalization competence. The difference in the complexity levels of the courses can be observed by the learning objectives and teaching methods used. The basic level course *Fundamentals in Intercultural and Multilingual Communication* focuses more on the theoretical knowledge and uses teaching methods such as essays in the form of a learning diary for self-reflection in addition to a group work assignment. On the contrary, the teaching methods of the advanced level *Global Information Systems* course include a group work assignment with project documents and a prototype of an information system as concrete outputs, as well as an essay-type final exam.

6   CONCLUSIONS AND FUTURE RESEARCH

This bachelor's thesis investigated globalization competences in the Information Systems field as well as introduced relevant competence assessment methods for the field. The goal of the thesis was to discover suitable competence assessment instruments and methods that can be used for assessing globalization competences of students and professionals in the Information Systems domain.

The research on globalization competences in the Information Systems domain by Pawlowski & Holtkamp (2012) formed the foundation for this study. Their research had identified seven competence categories – Generic competences, IS competences, ICT competences, Project Management and Leadership competences, Collaboration and Knowledge Management competences, Communication competences and Intercultural competences (Pawlowski & Holtkamp, 2012), of which the five latter were discussed in this work. Each competency category was presented with the four most important competences required for internationalization. In order to continue addressing the research problem, competence assessment instruments and methods from the field of health care, and a selection of job performance and other evaluation methods alike from the fields of Information Technology and business were discussed. Applicable competence assessment methods for the Information Systems domain were determined by matching the competence assessment instruments with the globalization competences. Finally, the applicability of the suggested competence assessment methods was evaluated through a design-science research method.

Findings of the research were the four most appropriate competence assessment methods for assessing globalization competences in the Information Systems domain. These assessment methods were written format assessments (especially essays), candidate self-reports, live interactions (especially group work), and computer simulations. The validity of the findings was confirmed through an appraisal of the practical applicability of the suggested competence assessment methods in relation to the learning objectives of two university courses of different complexity levels. 9 out of 16 globalization competences were assessable by essays, and essay-like assignments (learning diary and final

report) were utilized in both of the illustrated courses because of the ease of their execution. 6 out of 16 globalization competences were able to be assessed by candidate reports. The lower complexity course utilized this method in the form of a learning diary, where students self-reflected their learning during the course. The group work method, or any live interaction situation, was considered the most effective due to its applicability in 14 out of 16 globalization competences and execution on both of the example courses. Several competences, in addition to the knowledge content from the course, develop through group work assignments. Finally, computer simulations were considered implementable in 9 out of 16 globalization competences. Especially the business game idea was considered interesting for future course executions. In conclusion, the competence assessment methods were successfully applicable to both courses and supported the development of globalization competence.

The main limitation of this thesis is the lack of empirical research evidence to support the findings of this research. Each competence assessment method would require more detailed empirical analysis on their suitability for the globalization competences, and their applicability in practice for implementation in the Information Systems field. Another limitation is the novelty of the research field – not much research has been conducted on internationalization of the Information Systems curriculum and the required competences as of yet.

The research area of this thesis was somewhat large for a bachelor's thesis and previously little studied. The concept of globalization competences in the Information Systems domain is still fairly new, and therefore much previous research was not available. This thesis provides a compact foundation for the assessment of globalization competence and a starting point for further empirical research on the suitability of different assessment methods for the Information Systems field. In the future, different competence assessment method suggestions herein should be investigated in more detail in order to further verify the results of this research. Suggested research areas include:

- Empirical research on the suitability of suggested competence assessment methods for the Information Systems domain
- Complexity levels of the globalization competences and the suggested competence assessment methods
- Applying the competence assessment suggestions in practice in larger context

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APPENDIX 1 TJTS568 GLOBAL INFORMATION SYSTEMS COURSE DESCRIPTION

This course description is from the student guide 2011-2012 of Faculty of Information Technology (Faculty of Information Technology of University of Jyväskylä, 2011). Specific information has been omitted as the information value for this work was considered small. English translations of original text are presented in brackets.

Sisältö [Contents]: Developing, implementing, and adopting information systems cannot be limited to a single organization or country. Information Systems have to be designed to work in and for globally distributed organizations. This leads to new requirements regarding management and development competencies, for all, IT managers, developers, and users. This course gives an introduction to development methodologies as well as hands-on experiences to develop information systems for the global context. Students will be able to plan, design, and implement systems for international use.

Opetusmuodot [Teaching methods]: The course is designed to provide a problem-oriented learning experience. At the beginning of the course, a practical problem will be described showing the challenges and opportunities of global information systems. Starting from this problem, different components to develop solutions will be discussed. The course will start with an intensive face to face phase, introducing the problems and contents. After this introduction, groups will be built to cooperatively work on a case study. The results of the case study will be presented and discussed in a second face to face phase. The course will be concluded by a final written examination.

Osaamistavoitteet [Learning objectives]: After this course, students will be able to...

- Analyze and evaluate management and development problems in globally distributed organizations
- Decide whether an information system should be built in an international environment
- To identify differences in culture in general, in management and communication
- To design and develop systems to be used in a international context
- To evaluate systems' adaptation and adoption

Kurssi Korpissa [Course in Korppi]:
https://korppi.jyu.fi/kotka/r.jsp?course=114068

APPENDIX 2 XYHX003 FUNDAMENTALS IN INTERCULTURAL AND MULTILINGUAL COMMUNICATION COURSE DESCRIPTION

This course description is from the website of The Language Centre (The Language Centre of University of Jyväskylä, 2011). Specific information associated with the contents of the previous course organization has been omitted as the information for this work was considered irrelevant.

The course introduces students to fundamental issues and concepts in intercultural and multilingual communication from an interdisciplinary perspective. The course offers a theoretical and practical framework for enhancing students' knowledge of and competence in intercultural and multilingual issues. The aim of the course is to encourage students to gain basic knowledge about intercultural communication and languages, to enhance students' intercultural communication skills and language skills in some additional languages, and to build students' confidence for participation in intercultural contexts.

The course consists of 24 hours of obligatory lectures. In addition to these lectures, students must choose 6 lectures from a list of options. These are 2 hour lectures on specific language and culture areas.

In addition to lectures, methods of learning include selected readings, discussions, group work, and individual assignments.

On completion of the course, the students are expected to:

- Understand and be able discuss fundamental principles and topics in intercultural communication from an interdisciplinary perspective
- Be aware of different phenomena related to human behavior that affect intercultural communication (stereotypes, ethnocentrism, social identity, etc.)
- Know that there are differences in the verbal/non-verbal ways in which e.g. feelings, values, norms and expectations related to others are expressed in different languages
- Appreciate cultural and linguistic diversity
- Be able to analyze and negotiate communication between people from different cultural backgrounds in both national and international settings

Course in Korppi: https://korppi.jyu.fi/kotka/r.jsp?course=121454